



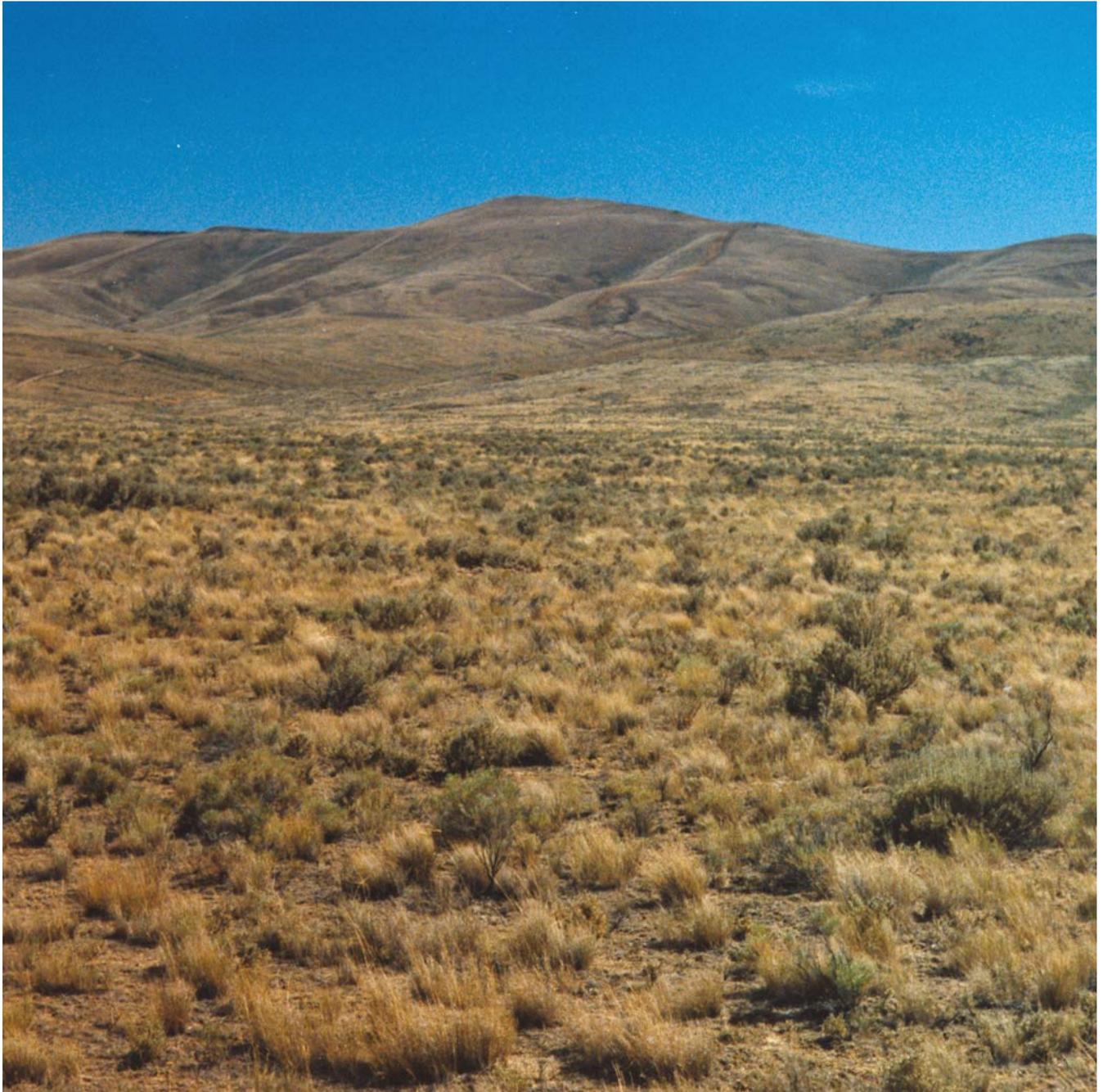
United States  
Department of  
Agriculture



Natural  
Resources  
Conservation  
Service

In cooperation with  
United States Department  
of the Army, Yakima  
Training Center; United  
States Army Corps of  
Engineers; and Washington  
State University  
Agricultural Research  
Center

# Soil Survey of Yakima Training Center, Parts of Kittitas and Yakima Counties, Washington





# How To Use This Soil Survey

## General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

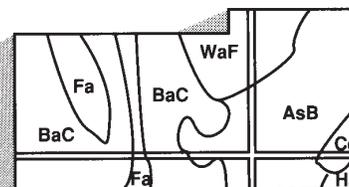
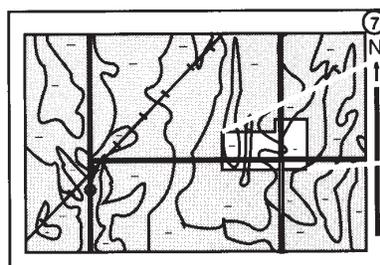
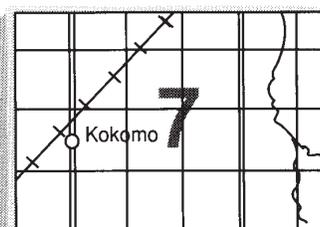
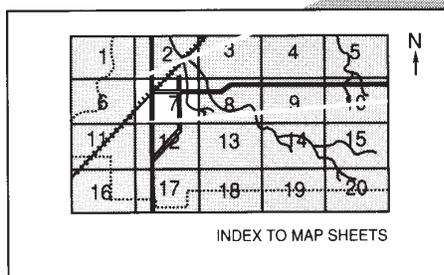
## Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

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This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1986. Soil names and descriptions were approved in 1994. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1994. This survey was made cooperatively by the Natural Resources Conservation Service and the United States Department of the Army, Yakima Training Center; United States Army Corps of Engineers; and Washington State University Agricultural Research Center. The survey is part of the technical assistance furnished to the Kittitas County and North Yakima Conservation Districts.

Since the publication of this survey, more information on soil properties may have been collected, new interpretations may have been developed, or existing interpretive criteria may have been modified. The most current soil information and interpretations for this survey are in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The soil maps in this publication are in digital form. The digitizing of the maps was completed in accordance with the Soil Survey Geographic (SSURGO) database standards. The digital SSURGO-certified maps are considered the official maps for the survey area and are part of the FOTG at the local field office of the Natural Resources Conservation Service.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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**Cover: Typical view of the Yakima Training Center. The Benwy, Manastash, and Selah soils are dominant on the old alluvial fan in foreground, and the Camaspatch and Whiskeydick soils are dominant on the ridgetops and hillslopes in background.**

*Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is <http://www.nrcs.usda.gov>.*

# Contents

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<b>How To Use This Soil Survey</b> .....	3
<b>Contents</b> .....	5
<b>Foreword</b> .....	13
General Nature of the Survey Area .....	15
How This Survey Was Made .....	17
<b>General Soil Map Units</b> .....	19
<i>Soils That Formed in Glacial Outwash, Loess, Alluvium, and Lacustrine Sediment; on Terraces, Terrace Escarpments, and Benches in Areas of Channeled Scabland</i> .....	19
1. Malaga-Starbuck-Sagehill .....	19
<i>Soils That Formed in Loess, Slope Alluvium, and Alluvium; on Alluvial Fans and Terraces</i> .....	20
2. Wanapum-Drysel-Scoon .....	20
3. Benwy-Selah-Manastash .....	20
<i>Soils That Formed in Residuum and Colluvium Derived from Basalt and in Loess; on Hillslopes, Ridgetops, and Benches</i> .....	21
4. Nevo-Fortyday-Drino .....	21
5. Vantage-Clerf-Argabak .....	21
6. Camaspatch-Whiskeydick .....	22
<i>Soils That Formed in Loess, Slope Alluvium, and Residuum and Colluvium Derived from Basalt; on Plateaus, Benches, Ridgetops, and Hillslopes</i> .....	22
7. Levnik-Nosser-Disage .....	23
8. Marlic-Zen .....	24
<b>Detailed Soil Map Units</b> .....	25
1—Argabak very cobbly loam, 3 to 15 percent slopes .....	26
2—Argabak very cobbly loam, 15 to 30 percent slopes .....	26
3—Argabak extremely cobbly loam, 3 to 15 percent slopes .....	27
4—Argabak extremely cobbly loam, 15 to 30 percent slopes .....	27
5—Argabak very stony loam, 3 to 15 percent slopes .....	28
6—Argabak very stony loam, 15 to 30 percent slopes .....	28
7—Argabak-Camaspatch complex, 3 to 15 percent slopes .....	29
8—Argabak-Horseflat complex, 3 to 15 percent slopes .....	29
9—Argabak-Horseflat complex, 15 to 30 percent slopes .....	30
10—Argabak-Vantage complex, 3 to 15 percent slopes .....	31
11—Argabak-Whiskeydick complex, 3 to 15 percent slopes .....	31
12—Argabak-Whiskeydick complex, 15 to 30 percent slopes .....	32
13—Argabak-Windry complex, 3 to 15 percent slopes .....	33
14—Argabak-Zen-Grinrod complex, 3 to 15 percent slopes .....	33
15—Argabak-Zen-Grinrod complex, 15 to 30 percent slopes .....	34
16—Argids, strongly sloping .....	35
17—Argids, moderately steep .....	36
18—Argixerolls-Durixerolls complex, steep north .....	36
19—Argixerolls-Durixerolls complex, steep south .....	37
20—Benwy silt loam, 5 to 10 percent slopes .....	38
21—Benwy silt loam, 10 to 15 percent slopes .....	38
22—Benwy silt loam, 15 to 30 percent slopes .....	39
23—Benwy-Vantage-Argabak complex, 3 to 15 percent slopes .....	39
24—Benwy-Vantage-Argabak complex, 15 to 30 percent slopes .....	41
25—Blint very cobbly loam, 15 to 30 percent slopes .....	41
26—Blint very cobbly loam, 45 to 60 percent slopes .....	42
27—Blint-Windry complex, 15 to 30 percent slopes .....	43
28—Brehm silt loam, 5 to 10 percent slopes .....	43
29—Brehm-Gorskel-Gorst complex, 10 to 15 percent slopes .....	44
30—Caliralls silt loam, 10 to 15 percent slopes .....	45
31—Caliralls silt loam, 15 to 30 percent slopes .....	45
32—Caliralls-Clerf complex, 15 to 30 percent slopes .....	46

33—Caliralls-Clerf complex, 30 to 45 percent slopes .....	47	55—Disage-Clenage complex, 15 to 30 percent slopes .....	62
34—Caliralls-Horseflat complex, 15 to 30 percent slopes .....	48	56—Drino cobbly loam, 15 to 30 percent slopes .....	63
35—Camaspatch very cobbly loam, 3 to 15 percent slopes .....	48	57—Drino very stony loam, 15 to 30 percent slopes .....	63
36—Camaspatch very cobbly loam, 15 to 30 percent slopes .....	49	58—Drino-Disage-Kiona complex, 30 to 45 percent slopes .....	64
37—Camaspatch very cobbly loam, thin, 3 to 15 percent slopes .....	49	59—Drino-Rubble land-Rock outcrop complex, 30 to 75 percent slopes .....	65
38—Camaspatch very cobbly loam, thin, 15 to 30 percent slopes .....	50	60—Drino-Rubble land-Rock outcrop complex, 30 to 75 percent north slopes .....	66
39—Camaspatch-Colockum complex, 15 to 30 percent slopes .....	50	61—Drino-Sohappy-Fortyday complex, 30 to 45 percent slopes .....	66
40—Camaspatch-Tanksel complex, 30 to 45 percent slopes .....	51	62—Drino-Sohappy-Fortyday complex, 45 to 60 percent slopes .....	67
41—Camaspatch-Tanksel-Lainand complex, 45 to 60 percent slopes .....	52	63—Drysel loam, 2 to 5 percent slopes .....	69
42—Camaspatch-Whiskeydick complex, 3 to 15 percent slopes .....	53	64—Drysel loam, 5 to 10 percent slopes .....	69
43—Camaspatch-Whiskeydick complex, 15 to 30 percent slopes .....	54	65—Durtash loam, 5 to 10 percent slopes .....	70
44—Camaspatch-Whiskeydick complex, 30 to 45 percent slopes .....	55	66—Esquatzel silt loam, 0 to 2 percent slopes .....	70
45—Camaspatch-Whiskeydick complex, 45 to 60 percent slopes .....	56	67—Esquatzel silt loam, 2 to 5 percent slopes .....	71
46—Clerf very cobbly loam, 15 to 30 percent slopes .....	57	68—Esquatzel-Aquolls-Weirman complex, channeled, 0 to 5 percent slopes .....	71
47—Clerf very cobbly loam, 30 to 45 percent slopes .....	57	69—Esquatzel-Weirman complex, channeled, 0 to 2 percent slopes .....	72
48—Colockum silt loam, 5 to 10 percent slopes .....	58	70—Finley complex, 3 to 15 percent slopes .....	73
49—Colockum silt loam, 10 to 15 percent slopes .....	58	71—Fortyday-Drino-Nevo complex, 15 to 30 percent slopes .....	74
50—Colockum silt loam, 15 to 30 percent slopes .....	59	72—Fortyday-Drino-Nevo complex, 30 to 45 percent slopes .....	75
51—Colockum-Tronsen complex, 3 to 15 percent slopes .....	59	73—Fortyday-Drino-Sohappy complex, 30 to 45 percent slopes .....	76
52—Disage very cobbly loam, 3 to 15 percent slopes .....	60	74—Fortyday-Nevo-Rock outcrop complex, 3 to 15 percent slopes .....	77
53—Disage very cobbly loam, 15 to 30 percent slopes .....	61	75—Fortyday-Rubble land-Rock outcrop complex, 45 to 70 percent slopes .....	78
54—Disage very stony loam, 30 to 45 percent slopes .....	61	76—Frint-Gidwin-Rubble land complex, 45 to 70 percent slopes .....	79
		77—Frint-Hogranh complex, 45 to 70 percent slopes .....	79
		78—Frint-Hogranh-Gidwin complex, 45 to 70 percent slopes .....	80

79—Gorskel complex, 3 to 15 percent slopes .....	81	102—Meloza-Roza complex, 10 to 15 percent slopes .....	98
80—Gorst loam, 2 to 5 percent slopes .....	82	103—Meloza-Roza complex, 15 to 30 percent slopes .....	99
81—Grinrod-Horseflat complex, 15 to 30 percent slopes .....	82	104—Nack-Opnish complex, 0 to 2 percent slopes .....	99
82—Grinrod-Horseflat complex, 45 to 60 percent slopes .....	83	105—Neppel-Scoon complex, 10 to 15 percent slopes .....	100
83—Haploxerolls-Orthents-Aquolls complex, channeled, 0 to 5 percent slopes .....	84	106—Nevo extremely gravelly sandy loam, 3 to 15 percent slopes .....	101
84—Horseflat very cobbly loam, 3 to 15 percent slopes .....	85	107—Nevo-Fortyday complex, 3 to 15 percent slopes .....	101
85—Horseflat very cobbly loam, 15 to 30 percent slopes .....	85	108—Nevo complex, 3 to 15 percent slopes .....	102
86—Kiona very stony loam, 45 to 60 percent slopes .....	86	109—Nevo complex, 15 to 30 percent slopes .....	103
87—Kiona-Rubble land complex, 30 to 75 percent slopes .....	86	110—Niben-Vantage-Benwy complex, 15 to 30 percent slopes .....	103
88—Lainand-Tanksel complex, 30 to 45 percent slopes .....	87	111—Norod-Horseflat complex, 15 to 30 percent slopes .....	104
89—Laric very gravelly loam, 3 to 15 percent slopes .....	88	112—Norod-Horseflat complex, 30 to 45 percent slopes .....	105
90—Laric-Zen complex, 3 to 15 percent slopes .....	88	113—Norod-Horseflat complex, 45 to 60 percent slopes .....	106
91—Levnik-Nosser-Nevo complex, 3 to 15 percent slopes .....	89	114—Norod-Ralock-Horseflat complex, 15 to 30 percent slopes .....	107
92—Malaga gravelly sandy loam, 5 to 10 percent slopes .....	90	115—Norod-Ralock-Horseflat complex, 30 to 45 percent slopes .....	108
93—Malaga cobbly sandy loam, 3 to 15 percent slopes .....	91	116—Norod-Ralock-Horseflat complex, 45 to 60 percent slopes .....	109
94—Manastash loam, 2 to 5 percent slopes .....	91	117—Norod-Rubble land complex, 30 to 75 percent slopes .....	110
95—Manastash loam, 5 to 10 percent slopes .....	92	118—Nosser-Levnik complex, 3 to 15 percent slopes .....	111
96—Manastash-Durtash complex, 5 to 10 percent slopes .....	92	119—Nosser-Levnik complex, 15 to 30 percent slopes .....	111
97—Manastash-Durtash complex, 15 to 30 percent slopes .....	93	120—Palerf-Ralock-Vantage complex, 15 to 30 percent slopes .....	112
98—Manastash-Meloza-Durtash complex, 15 to 30 percent slopes .....	94	121—Palerf-Vantage complex, 15 to 30 percent slopes .....	113
99—Manastash-Selah-Gorst complex, 15 to 30 percent slopes .....	95	122—Palexerolls-Patron complex, 15 to 30 percent slopes .....	115
100—Marlic-Zen-Laric complex, 3 to 15 percent slopes .....	96	123—Patron-Camaspach complex, 15 to 30 percent slopes .....	116
101—Meloza-Roza complex, 5 to 10 percent slopes .....	97		

---

124—Prosser silt loam, 10 to 15 percent slopes .....	116	148—Sohappy-Fortyday complex, 30 to 45 percent slopes .....	132
125—Prosser-Nevo complex, 3 to 15 percent slopes .....	117	149—Starbuck-Rock outcrop complex, 3 to 15 percent slopes .....	132
126—Ralock silt loam, 15 to 30 percent slopes .....	118	150—Tanksel-Patron-Camaspatch complex, 15 to 30 percent slopes .....	133
127—Ralock silt loam, 30 to 45 percent slopes .....	118	151—Tanksel-Patron-Camaspatch complex, 30 to 45 percent slopes .....	134
128—Ralock-Horseflat complex, 15 to 30 percent slopes .....	119	152—Tanksel-Wockum complex, 15 to 30 percent slopes .....	135
129—Ralock-Palerf complex, 15 to 30 percent slopes .....	120	153—Tanksel-Wockum complex, 30 to 45 percent slopes .....	136
130—Ralock-Palerf complex, 30 to 45 percent slopes .....	121	154—Tanksel-Wockum complex, 45 to 65 percent slopes .....	137
131—Rock outcrop .....	121	155—Terlan gravelly loam, 2 to 5 percent slopes .....	138
132—Rollinger silt loam, 5 to 10 percent slopes .....	122	156—Terlan gravelly loam, 5 to 10 percent slopes .....	138
133—Rollinger silt loam, 10 to 15 percent slopes .....	122	157—Terlan-Durtash-Selah complex, 2 to 5 percent slopes .....	139
134—Rollinger silt loam, 15 to 30 percent slopes .....	123	158—Terlan-Durtash-Selah complex, 5 to 15 percent slopes .....	140
135—Rollinger silt loam, 30 to 45 percent slopes .....	123	159—Timmerman complex, 2 to 5 percent slopes .....	141
136—Rollinger silt loam, 45 to 60 percent slopes .....	124	160—Tronsen stony loam, 3 to 15 percent slopes .....	141
137—Rubble land-Rock outcrop complex, 60 to 120 percent slopes .....	124	161—Tronsen stony loam, 15 to 30 percent slopes .....	142
138—Rubble land-Rock outcrop-Kiona complex, 60 to 120 percent slopes .....	125	162—Vantage extremely gravelly loam, 3 to 15 percent slopes .....	142
139—Sagehill-Burbank-Malaga complex, 30 to 60 percent slopes .....	125	163—Vantage very cobbly loam, 3 to 15 percent slopes .....	143
140—Scoon loam, 5 to 10 percent slopes .....	126	164—Vantage very cobbly loam, 15 to 30 percent slopes .....	143
141—Selah silt loam, 0 to 2 percent slopes .....	127	165—Vantage very cobbly loam, thin, 3 to 15 percent slopes .....	144
142—Selah silt loam, 2 to 5 percent slopes .....	127	166—Vantage very cobbly loam, thin, 15 to 30 percent slopes .....	144
143—Selah silt loam, 5 to 10 percent slopes .....	128	167—Vantage-Benwy-Argabak complex, 3 to 15 percent slopes .....	145
144—Selah silt loam, 10 to 15 percent slopes .....	129	168—Vantage-Benwy-Argabak complex, 15 to 30 percent slopes .....	146
145—Selah silt loam, 15 to 30 percent slopes .....	129	169—Vantage-Clerf complex, 3 to 15 percent slopes .....	147
146—Sohappy-Fortyday complex, 3 to 15 percent slopes .....	130		
147—Sohappy-Fortyday complex, 15 to 30 percent slopes .....	131		

170—Vantage-Clerf complex, 15 to 30 percent slopes .....	148	192—Wockum-Blint-Windry complex, 45 to 60 percent slopes .....	164
171—Vantage-Clerf complex, 30 to 45 percent slopes .....	148	193—Zen silt loam, 5 to 10 percent slopes .....	165
172—Vantage-Clerf-Rubble land complex, 30 to 45 percent slopes .....	149	194—Zen silt loam, 10 to 15 percent slopes .....	166
173—Vantage-Niben-Clerf complex, 3 to 15 percent slopes .....	150	195—Zen silt loam, 15 to 30 percent slopes .....	166
174—Vantage very cobbly loams complex, 3 to 15 percent slopes .....	151	196—Zen-Benwy-Laric complex, 3 to 15 percent slopes .....	167
175—Vantage very stony loams complex, 3 to 15 percent slopes .....	152	197—Zen-Marlic-Laric complex, 3 to 15 percent slopes .....	168
176—Vantage very stony loams complex, 15 to 30 percent slopes .....	153	198—Torrifluvents complex, nearly level .....	169
177—Wanapum cobbly loam, 2 to 5 percent slopes .....	154	199—Haploxerolls complex, 3 to 5 percent slopes .....	169
178—Wanapum complex, 5 to 10 percent slopes .....	154	200—Malaga complex, 3 to 15 percent slopes .....	170
179—Wanapum complex, 10 to 15 percent slopes .....	155	201—Semal complex, 3 to 15 percent slopes .....	170
180—Whiskeydick very cobbly loam, 15 to 30 percent slopes .....	156	202—Water .....	171
181—Whiskeydick very cobbly loam, 30 to 45 percent slopes .....	156	203—Pits .....	171
182—Whiskeydick-Tronsen-Camaspatch complex, 15 to 30 percent slopes .....	157	204—Dam .....	171
183—Whiskeydick-Tronsen-Camaspatch complex, 30 to 45 percent slopes .....	158	205—Arents, moderately steep .....	171
184—Whiskeydick-Tronsen-Camaspatch complex, 45 to 60 percent slopes .....	159	206—Burbank loamy fine sand, 0 to 5 percent slopes .....	172
185—Winchester-Sagehill-Burbank complex, 5 to 30 percent slopes .....	160	207—Rock Creek very stony silt loam, 0 to 30 percent slopes .....	172
186—Wipple cobbly clay loam, 3 to 15 percent slopes .....	161	208—Kiona stony silt loam, 15 to 45 percent slopes .....	173
187—Wipple cobbly clay loam, 15 to 30 percent slopes .....	161	209—Licksillet very stony silt loam, 5 to 45 percent slopes .....	173
188—Wipple cobbly clay loam, 30 to 45 percent slopes .....	162	210—Starbuck-Rock outcrop complex, 0 to 45 percent slopes .....	174
189—Wockum silt loam, 15 to 30 percent slopes .....	162	211—Starbuck-Rock outcrop complex, 45 to 60 percent slopes .....	174
190—Wockum silt loam, 30 to 45 percent slopes .....	163	212—Willis silt loam, 2 to 5 percent slopes .....	175
191—Wockum-Blint complex, 15 to 30 percent slopes .....	163	213—Willis silt loam, 5 to 8 percent slopes .....	175
		214—Willis silt loam, 8 to 15 percent slopes .....	176
		215—Bakeoven very cobbly silt loam, 0 to 30 percent slopes .....	176
		<b>Use and Management of the Soils</b> .....	179
		Land Capability Classification .....	179
		Rangeland .....	180
		Windbreaks and Environmental Plantings .....	181

---

Recreation .....	182	Haploxerolls .....	217
Wildlife Habitat .....	182	Hogranch Series .....	218
Engineering .....	184	Horseflat Series .....	219
Building Site Development .....	185	Kiona series .....	219
Sanitary Facilities .....	186	Lainand Series .....	220
Construction Materials .....	187	Laric Series .....	221
Water Management.....	188	Levnik Series .....	221
Wheeled Vehicle Use .....	189	Licksillet Series .....	222
<b>Soil Properties</b> .....	191	Malaga Series .....	222
Engineering Index Properties .....	191	Manastash Series .....	223
Physical Properties .....	192	Marlic Series .....	224
Chemical Properties .....	193	Meloza Series .....	225
Water Features .....	194	Nack Series .....	225
Soil Features .....	195	Neppel series .....	226
<b>Classification of the Soils</b> .....	197	Nevo Series .....	227
Taxonomic Units and Their Morphology .....	197	Niben Series.....	227
Aquolls .....	197	Norod Series .....	228
Arents.....	198	Nosser Series .....	229
Argabak Series.....	198	Opnish Series.....	230
Argids .....	199	Orthents .....	231
Argixerolls .....	199	Palerf Series .....	231
Bakeoven Series .....	200	Palexerolls .....	232
Benwy Series .....	200	Patron Series .....	232
Blint Series .....	201	Prosser Series .....	233
Brehm Series .....	202	Ralock Series .....	234
Burbank Series.....	203	Rock Creek Series .....	235
Caliralls Series .....	204	Rollinger Series .....	235
Camaspatch Series .....	205	Roza Series .....	237
Clenage Series.....	205	Sagehill Series .....	237
Clerf Series .....	206	Scoon Series .....	238
Colockum Series .....	207	Selah Series .....	238
Disage Series .....	208	Semal Series .....	240
Drino Series .....	209	Sohappy Series .....	241
Drysel Series.....	209	Starbuck Series .....	241
Durixerolls .....	210	Tanksel Series .....	242
Durtash Series .....	211	Terlan Series .....	243
Esquatzel Series .....	212	Timmerman Series .....	243
Finley Series .....	213	Torrifluvents .....	244
Fortyday Series .....	213	Tronsen Series .....	245
Frint Series .....	214	Vantage Series .....	245
Gidwin Series .....	215	Wanapum Series .....	246
Gorskel Series.....	215	Weirman Series.....	247
Gorst Series .....	216	Whiskeydick Series .....	247
Grinrod Series .....	217	Willis Series.....	248

---

Winchester Series .....	248	Table 6.—Windbreaks and Environmental Plantings .....	377
Windry Series .....	249	Table 7.—Recreational Development .....	391
Wipple Series .....	249	Table 8.—Wildlife Habitat .....	422
Wockum Series .....	250	Table 9.—Building Site Development .....	446
Zen Series .....	251	Table 10.—Sanitary Facilities .....	477
<b>Formation of the Soils</b> .....	253	Table 11.—Construction Materials .....	510
<b>References</b> .....	257	Table 12.—Water Management .....	542
<b>Glossary</b> .....	259	Table 13.—Wheeled Vehicle Use .....	571
<b>Tables</b> .....	273	Table 14.—Engineering Index Properties .....	601
Table 1.—Temperature and Precipitation .....	274	Table 15.—Physical Properties of the Soils .....	751
Table 2.—Freeze Dates in Spring and Fall .....	275	Table 16.—Chemical Properties of the Soils .....	786
Table 3.—Growing Season .....	275	Table 17.—Water Features .....	821
Table 4.—Acreage and Proportionate Extent of the Soils .....	276	Table 18.—Soil Features .....	845
Table 5.—Rangeland Productivity and Characteristic Plant Communities .....	282	Table 19.—Classification of the Soils .....	862



# Foreword

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This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Raymond L. Hughbanks  
State Conservationist  
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**Location of Yakima Training Center in Washington.**

# Soil Survey of Yakima Training Center, Parts of Kittitas and Yakima Counties, Washington

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By Herman R. Gentry

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United States Department of Agriculture, Natural Resources Conservation Service,  
in cooperation with  
United States Department of the Army, Yakima Training Center; United States Army  
Corps of Engineers; and Washington State University Agricultural Research Center

YAKIMA TRAINING CENTER is in south-central Washington and includes parts of Kittitas and Yakima Counties. It has a total area of about 325,616 acres, or about 509 square miles.

The survey area is bounded on the east by the Columbia River, on the south by Yakima Ridge, on the west by U.S. Interstate 82, and on the north by U.S. Interstate 90. Elevation ranges from about 500 feet near Priest Rapids Dam to 4,216 feet on the top of Hogranch Buttes.

Soils scientists determined that there are about 77 different kinds of soil in the survey area. The soils vary widely in texture, content of rock fragments, and slope. They formed in colluvium, residuum, slope alluvium, outwash deposits, loess, and alluvium.

The survey area is used mainly for military training; however, cattle and sheep grazing is also an important use of the area. Other uses include hunting and cultural activities by Native Americans.

## General Nature of the Survey Area

This section discusses the history, physiography and geology, and climate of the survey area.

### History

The survey area has been inhabited by Native Americans for about 11,000 years; therefore, it has a vast and rich cultural heritage. Six different phases of

people inhabited the area, including the Prehistory, Windust, Vantage, Frenchman Spring, Cayuse, and Proto-Historic people. Evidence of all of these people is in the area.

In 1811 explorer and fur trader David Thompson traveled down the Columbia River to the Pacific Ocean. He was one of the first white men to see the survey area. In 1853 a road was constructed from Fort Walla Walla to Fort Steilacoom. It transected the southern part of the survey area, in the location of the present-day Cold Creek Road. In the early 1860's, the rangeland in the area was used for cattle grazing by firms based in Yakima and Ellensburg. Sheep were introduced to the area in the 1880's, which contributed to severe overgrazing. Agricultural activities during this period were limited by a lack of easily accessible water.

In the early 1900's, several silica mines were established. They remained active until the Army leased the land in the 1940's. About 160,000 acres was leased from private landowners in 1941 and 1942. This land was known as the Yakima Artillery Range. In the 1950's, some of the surrounding area was also leased, making a total of about 263,000 acres. The land was used primarily for military training and for grazing by lease. At present, the Yakima Training Center serves the training needs for the Ninth Infantry Division of the Army, the Army Reserve Branch, the Army National Guard, the Air Force, Navy, and Marines, and the Coast Guard and for the Canadian Military Force.

## Physiography and Geology

The survey area is located in the Columbia Plateaus physiographic province. East-west trending anticlines and synclines characterize the area. At the base of these ridges are tilted fan piedmonts that are a result of faulting.

About 17 million years ago, large fissures opened in the earth's crust near the Pullman-Lewiston area. Liquid basalt flowed over the basin toward the west to the crest of the Cascade Range. Several of these flows occurred at long enough intervals for alluvium and volcanic material to accumulate and for some soil development to occur. These flows are known as the Ellensburg Formation. As new basalt flows spread over the basin, the entire region subsided. The elevation of the surface thus remained about the same.

About the time of the last basalt flow, the Cascade Range began to rise and the volcanoes began to form. Mudflows and pyroclastic material were deposited over the last basalt flow, creating the uppermost member of the Ellensburg Formation. Deposition of the mudflows and pyroclastic material continued for several million years after the last basalt flow, and the uplifting of the east-west trending ridges in the survey area began before the deposition ended. These ridges and the Cascade Range continued to rise until about 1 million years ago. Since then, only very slight deformation has occurred.

Prior to this period of uplifting, the Columbia River flowed near the present towns of Yakima and Selah. Deposits of gravel with a high content of quartzite are evidence of this previous path of the river. It is believed that these deposits originated from the upper Rocky Mountain region. During the period of uplifting, the course of the river changed to that of the present. The river eroded through the Saddle Mountains, near the present site of Vantage, but its course was altered to a more easterly direction at Umtanum Ridge.

The survey area was subject to as many as 40 catastrophic floods during the Pleistocene. These floods were the result of glaciers damming and releasing the Clark Fork River in northern Idaho and Montana. The granite erratics in the area are evidence of these floods. These granite boulders were transported by large chunks of ice and deposited as the ice melted. Several of these boulders are more than 5 meters in diameter. Also during this time, loess was deposited as a result of the prevailing southwesterly winds. As much as 10 feet of loess was deposited on the north-facing slopes, but only a few inches was deposited on the south-facing slopes.

## Climate

Prepared by the National Water and Climate Center, Natural Resources Conservation Service, Portland, Oregon.

The Rocky Mountains and the Cascade Range greatly influence the climate of the survey area. The winters in the survey area are cold but not too severe because the Rocky Mountains shield the area from strong arctic winds. The Cascade Range forms a barrier to the easterly movement of moist air from the Pacific Ocean; however, some of this air still reaches the survey area.

Summers in the survey area are dry and hot, but the hottest periods in summer are of short duration. Precipitation in summer falls mainly as showers with some thunderstorms. In winter, the ground is covered with snow much of the time. Warm, dry Chinook winds flow downslope, commonly melting the snow and evaporating the moisture.

The mean annual precipitation is 8.89 inches at Ellensburg (elevation 1,520 feet), 10 inches at Hartline (elevation 1,910 feet), 10.65 inches at Mansfield (elevation 2,267 feet), 7.64 inches at Moxee City (elevation 1,000 feet), 6.83 inches at Priest Rapids Dam (elevation 460 feet), and 11.47 inches at Waterville (elevation 2,617 feet). Generally, as the elevation increases, precipitation increases and temperature decreases.

Data for the climate tables was recorded at the Moxee City 10E climate station in Washington. Thunderstorm days, relative humidity, percent sunshine, and wind information were estimated from data recorded at the First Order station in Yakima, Washington.

Table 1 gives data on temperature and precipitation as recorded at Moxee City 10E in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 31.4 degrees F and the average daily minimum temperature is 24.0 degrees. The lowest temperature on record, which occurred at Moxee City 10E on December 17, 1964, was -23 degrees. In summer, the average temperature is 66.4 degrees and the average daily maximum temperature is 82.6 degrees. The highest temperature, which occurred at Moxee City 10E on August 4, 1961, was 108 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees). The normal monthly accumulation is used to schedule single or successive

plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual precipitation is about 7.64 inches. Of this, about 2.3 inches, or 30 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 2.99 inches at Moxee City 10E on August 6, 1976. Thunderstorms occur on about 7 days each year, and most occur in May through August.

The average seasonal snowfall is 14.1 inches. The greatest snow depth at any one time during the period of record was 19 inches recorded on December 21, 1964. On an average, 13 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 14 inches recorded on December 21, 1964.

The average relative humidity in midafternoon is about 44 percent. Humidity is higher at night, and the average at dawn is about 77 percent. The sun shines 77 percent of the time possible in summer and 33 percent in winter. The prevailing wind is from the west. The average windspeed is highest, 8 to 9 miles per hour, in April through June.

## How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist

to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil

scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the

significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# General Soil Map Units

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The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

## ***Soils That Formed in Glacial Outwash, Loess, Alluvium, and Lacustrine Sediment; on Terraces, Terrace Escarpments, and Benches in Areas of Channeled Scabland***

The soils in this group are gently sloping to very steep. The native vegetation is mainly grasses and shrubs. Elevation is 500 to 1,300 feet. The average annual air temperature is about 50 degrees F, and the frost-free season is 135 to 195 days. These soils are very deep and shallow and are somewhat excessively drained and well drained. They formed in glacial outwash, loess, alluvium, and lacustrine sediment. They are used as sites for military training, for livestock grazing, and as wildlife habitat.

### **1. Malaga-Starbuck-Sagehill**

*Very deep and shallow, somewhat excessively drained and well drained, gently sloping to very steep soils in the 6- to 9-inch precipitation zone*

This map unit is mainly in the eastern part of the survey area. Slope is 3 to 60 percent. The native vegetation is mainly grasses and shrubs. Elevation is 500 to 1,300 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

The Malaga soils are on terraces and terrace escarpments. These soils are very deep and somewhat excessively drained. They formed in glacial outwash. The upper part of the surface layer is gravelly sandy loam, gravelly fine sandy loam, or cobbly sandy loam, and the lower part is gravelly fine sandy loam. The subsoil is very gravelly fine sandy loam. The substratum to a depth of 60 inches or more is extremely gravelly loamy sand and extremely gravelly coarse sand.

The Starbuck soils are on benches. These soils are shallow and well drained. They formed in loess and alluvium. The surface layer and subsoil are fine sandy loam. They are underlain by basalt at a depth of about 16 inches. Depth to basalt is 12 to 20 inches.

The Sagehill soils are on terraces and terrace escarpments. These soils are very deep and well drained. They formed in lacustrine sediment with a mantle of loess. The surface layer and subsoil are fine sandy loam.

Of minor extent in this unit are Nevo soils on benches and ridgetops, Fortyday soils on benches, Rock outcrop and Rubble land on benches and hillslopes, Sohappay and Kiona soils on hillslopes, and Burbank, Timmerman, and Winchester soils on terraces.

This unit is used mainly as sites for military training, for livestock grazing, and as wildlife habitat.

The main limitation for use as sites for military training is excessive wetness of the Starbuck soils early in spring. The main limitations for livestock grazing are the accumulation of salt in the Malaga and Sagehill soils, which is highly corrosive to uncoated steel; the risk of seepage from livestock ponds on the Malaga soils; and the depth to bedrock in the Starbuck soils, which restricts construction of fences, pipelines, and livestock ponds and restricts seeding.

### ***Soils That Formed in Loess, Slope Alluvium, and Alluvium; on Alluvial Fans and Terraces***

The soils in this group are nearly level to moderately steep. The native vegetation is mainly grasses and shrubs. Elevation is 800 to 2,900 feet. The average annual air temperature is about 50 degrees F, and the frost-free season is 130 to 195 days. The soils in this group are shallow to very deep and are well drained. They formed in loess, alluvium, and slope alluvium. They are used as sites for military training, for livestock grazing, and as wildlife habitat.

## **2. Wanapum-Drysel-Scoon**

*Shallow and moderately deep, well drained, gently sloping to strongly sloping soils in the 6- to 9-inch precipitation zone*

This map unit is mainly in the southwestern and northeastern parts of the survey area. Slope is 2 to 15 percent. The native vegetation is mainly grasses and shrubs. Elevation is 800 to 1,800 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

The Wanapum soils are on alluvial fans. These soils are shallow to a hardpan and are well drained. They formed in loess and alluvium. The surface layer is loam or cobbly loam. The subsoil is very gravelly loam over a lime- and silica-cemented hardpan at a depth of about 13 inches. Depth to the hardpan is 11 to 19 inches.

The Drysel soils are on alluvial fans. These soils are moderately deep to a hardpan and are well drained. They formed in loess and alluvium. The surface layer is loam. The subsoil is silt loam and loam over a lime- and silica-cemented hardpan at a depth of about 31 inches. Depth to the hardpan is 20 to 40 inches.

The Scoon soils are on terraces and alluvial fans. These soils are shallow to a hardpan and are well

drained. They formed in loess. The surface layer is loam. The subsoil is silt loam and gravelly silt loam over a lime- and silica-cemented hardpan at a depth of about 17 inches. Depth to the hardpan is 10 to 20 inches.

Of minor extent in this unit are Malaga soils on terraces, Disage and Fortyday soils on hillslopes, and Nevo and Disage soils on ridgetops.

This unit is used as sites for military training, for livestock grazing, and as wildlife habitat.

The main limitations for use as sites for military training are the hazard of water erosion in winter and dustiness of the Drysel and Scoon soils in summer. The main limitations for livestock grazing are the accumulation of salt, which is highly corrosive to uncoated steel, and the depth to the hardpan, which restricts construction of fences, pipelines, and livestock ponds.

## **3. Benwy-Selah-Manastash**

*Very deep to moderately deep, well drained, nearly level to moderately steep soils in the 9- to 12-inch precipitation zone*

This map unit is throughout the survey area. Slope is 0 to 30 percent. The native vegetation is mainly grasses and shrubs. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

The Benwy soils are on alluvial fans. These soils are deep and very deep to a hardpan and are well drained. They formed in loess and slope alluvium. The surface layer is silt loam. The subsoil is silt loam, loam, and gravelly loam. Depth to the hardpan is more than 40 inches.

The Selah soils are on alluvial fans. These soils are moderately deep to a hardpan and are well drained. They formed in loess and alluvium. The surface layer is silt loam. The subsoil is silt loam, silty clay loam, and clay loam over a lime- and silica-cemented hardpan at a depth of about 27 inches. Depth to the hardpan is 20 to 40 inches.

The Manastash soils are on alluvial fans. These soils are moderately deep to a hardpan and are well drained. They formed in loess and alluvium. The surface layer is loam. The subsoil is gravelly clay loam and gravelly clay over a lime- and silica-cemented hardpan at a depth of about 25 inches. Depth to the hardpan is 20 to 40 inches.

Of minor extent in this unit are Brehm, Durtash, Gorskel, Gorst, Meloza, and Roza soils on alluvial

fans and Zen, Rollinger, and Laric soils on ridgetops and benches.

This unit is used mainly as sites for military training, for livestock grazing, and as wildlife habitat.

The main limitations for use as sites for military training are the hazard of water erosion in winter and dustiness in summer. The main limitations for livestock grazing are the accumulation of salt, which is highly corrosive to uncoated steel, and the depth to the hardpan in the Selah and Manastash soils, which restricts construction of livestock ponds.

### ***Soils That Formed in Residuum and Colluvium Derived from Basalt and in Loess; on Hillslopes, Ridgetops, and Benches***

The soils in this group are gently sloping to very steep. The native vegetation is mainly grasses and shrubs. Elevation is 500 to 4,200 feet. The average annual air temperature is about 48 degrees F, and the frost-free season is 120 to 195 days. The soils in this group are very shallow to moderately deep and are well drained. They formed in residuum and colluvium derived from basalt and in loess. They are used as sites for military training, for livestock grazing, and as wildlife habitat.

#### **4. Nevo-Fortyday-Drino**

*Very shallow to moderately deep, well drained, gently sloping to very steep soils in the 6- to 9-inch precipitation zone*

This map unit is mainly in the eastern part of the survey area. Slope is 3 to 75 percent. The native vegetation is mainly grasses and shrubs. Elevation is 500 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

The Nevo soils are on hillslopes, ridgetops, and benches. These soils are very shallow and well drained. They formed in residuum derived from basalt. The surface layer is very cobbly loam, extremely gravelly sandy loam, or stony sandy loam. The subsoil is very gravelly clay loam over basalt at a depth of about 8 inches. Depth to basalt is 5 to 10 inches.

The Fortyday soils are on hillslopes and benches. These soils are shallow and well drained. They formed in residuum and colluvium derived from basalt with small additions of loess. The upper part of the surface layer is stony sandy loam, very stony loam, or cobbly

loam, and the lower part is very gravelly loam or very cobbly loam. The subsoil is very gravelly loam and extremely cobbly loam underlain by basalt at a depth of about 15 inches. Depth to basalt is 14 to 20 inches.

The Drino soils are on hillslopes. These soils are moderately deep and well drained. They formed in colluvium derived from basalt and in loess. The surface layer is very stony loam, very cobbly loam, or cobbly loam. The upper part of the subsoil is very gravelly loam, and the lower part is extremely cobbly loam underlain by basalt at a depth of 38 inches. Depth to basalt is 20 to 40 inches.

Of minor extent in this unit are Disage, Kiona, and Sohappay soils on hillslopes, Prosser soils on benches and hillslopes, Rock outcrop and Rubble land on hillslopes, Argids on terraces, and Orthents, Haploxerolls, and Weirman soils on flood plains.

This unit is used as sites for military training, for livestock grazing, and as wildlife habitat.

The main limitations for use as sites for military training are excessive wetness early in spring, slope, and the hazard of water erosion in winter. The main limitations for livestock grazing are the depth to bedrock in the Nevo and Fortyday soils, slope, and rock fragments in the surface layer. The depth to bedrock, slope, and rock fragments restrict construction of fences and pipelines and restrict seeding, the slope and depth to bedrock restrict construction of livestock ponds, and the slope restricts the distribution of livestock.

#### **5. Vantage-Clerf-Argabak**

*Very shallow to moderately deep, well drained, gently sloping to steep soils in the 9- to 12-inch precipitation zone*

This map unit is throughout the survey area. Slope is 3 to 45 percent. The native vegetation is mainly grasses and shrubs. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

The Vantage soils are on hillslopes, ridgetops, and benches. These soils are shallow and well drained. They formed in residuum and colluvium derived from basalt and in loess. The surface layer is very cobbly loam, extremely gravelly loam, or very stony loam. The upper part of the subsoil is very cobbly clay loam, and the lower part is extremely gravelly clay. It is underlain by basalt at a depth of about 17 inches. Depth to basalt is 12 to 20 inches.

The Clerf soils are on hillslopes and ridgetops. These soils are moderately deep and well drained.

They formed in residuum and colluvium derived from basalt and in loess. The upper part of the surface layer is very cobbly loam, and the lower part is very cobbly clay loam, very gravelly clay loam, or very gravelly loam. The upper part of the subsoil is very gravelly clay, and the lower part is extremely cobbly clay. It is underlain by basalt at a depth of about 24 inches. Depth to basalt is 20 to 40 inches.

The Argabak soils are on hillslopes, ridgetops, and benches. These soils are very shallow and shallow and are well drained. They formed in residuum derived from basalt and in loess. The surface layer is very cobbly loam, very stony loam, or extremely cobbly loam. The subsoil is extremely gravelly loam. It is underlain by basalt at a depth of about 6 inches. Depth to basalt is 5 to 12 inches.

Of minor extent in this unit are Caliralls, Grinrod, and Wipple soils on south-facing hillslopes; Norod, Palerf, and Ralock soils on north-facing hillslopes; Rock outcrop and Rubble land on hillslopes; Horseflat soils on ridgetops, benches, and hillslopes; Laric and Zen soils on ridgetops and benches; Esquatzel and Weirman soils, Orthents, and Haploxerolls on flood plains; and Benwy, Brehm, Durtash, Gorskel, Gorst, Manastash, and Selah soils on alluvial fans.

This unit is used as sites for military training, for livestock grazing, and as wildlife habitat.

The main limitations for use as sites for military training are excessive wetness in spring, slope, and the hazard of water erosion in winter. The main limitations for livestock grazing are the depth to bedrock in the Vantage and Argabak soils, slope, and rock fragments in the surface layer. The depth to bedrock, slope, and rock fragments restrict construction of fences and pipelines and restrict seeding, the slope and depth to bedrock restrict the construction of livestock ponds, and the slope restricts the distribution of livestock.

## 6. Camaspatch-Whiskeydick

*Shallow and moderately deep, well drained, gently sloping to very steep soils in the 12- to 15-inch precipitation zone*

This map unit is throughout the survey area (fig. 1). Slope is 3 to 60 percent. The native vegetation is mainly grasses and shrubs. Elevation is 2,500 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 48 degrees F, and the frost-free season is 120 to 135 days.

The Camaspatch soils are on hillslopes, ridgetops, and benches. These soils are shallow and well drained. They formed in residuum and colluvium derived from basalt and in loess. The surface layer is very cobbly loam. The upper part of the subsoil is very gravelly clay loam, and the lower part is extremely gravelly clay. It is underlain by basalt at a depth of about 19 inches. Depth to basalt is 12 to 20 inches.

The Whiskeydick soils are on hillslopes, ridgetops, and benches. These soils are moderately deep and well drained. They formed in residuum and colluvium derived from basalt and in loess. The surface layer is very cobbly loam. The upper part of the subsoil is very cobbly clay loam, and the lower part is very cobbly clay and extremely cobbly clay. It is underlain by basalt at a depth of about 30 inches. Depth to basalt ranges from 20 to 40 inches.

Of minor extent in this unit are Blint, Frint, Gidwin, Hogranch, Lainand, Ralock, Tanksel, Windry, and Wockum soils on north-facing hillslopes and Colockum and Tronsen soils on south-facing hillslopes.

This unit is used as sites for military training, for livestock grazing, and as wildlife habitat.

The main limitations for use as sites for military training are excessive wetness in spring, slope, and the hazard of water erosion in winter. The main limitations for livestock grazing are the depth to bedrock in the Camaspatch soils, slope, and rock fragment in the surface layer. The depth to bedrock, rock fragments, and slope restrict the construction of fences and pipelines and restrict seeding, the slope and depth to bedrock restrict the construction of livestock ponds, and the slope restricts the distribution of livestock.

### ***Soils That Formed in Loess, Slope Alluvium, and Residuum and Colluvium Derived from Basalt; on Plateaus, Benches, Ridgetops, and Hillslopes***

The soils in this group are gently sloping to steep. The native vegetation is mainly grasses and shrubs. Elevation is 500 to 2,900 feet. The average annual air temperature is about 49 degrees F, and the frost-free season is 130 to 195 days. The soils in this group are shallow and moderately deep and are well drained. They formed in loess, slope alluvium, and colluvium and residuum derived from basalt. The soils are used as sites for military training, for livestock grazing, and as wildlife habitat.



Figure 1.—Typical area of general soil map unit 6.

## 7. Levnik-Nosser-Disage

*Shallow and moderately deep, well drained, gently sloping to steep soils in the 6- to 9-inch precipitation zone*

This map unit is mainly in the northern part of the survey area. Slope is 3 to 45 percent. The native vegetation is mainly grasses and shrubs. Elevation is 500 to 2,000 feet. The average annual precipitation is

6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

The Levnik soils are on hillslopes and dissected plateaus. These soils are shallow and well drained. They formed in residuum derived from basalt and slope alluvium with additions of loess. The surface layer is very gravelly loam. The upper part of the subsoil is clay loam, the middle part is gravelly clay, and the lower part is extremely gravelly clay. It is

underlain by basalt at a depth of about 16 inches. Depth to basalt is 12 to 20 inches.

The Nosser soils are on hillslopes and dissected plateaus. These soils are moderately deep and well drained. They formed in loess, slope alluvium, and residuum derived from basalt. The surface layer is gravelly loam. The upper part of the subsoil is clay loam, the middle part is gravelly clay loam, and the lower part is extremely gravelly clay loam. It is underlain by basalt at a depth of about 22 inches. Depth to basalt is 20 to 40 inches.

The Disage soils are on ridgetops and hillslopes. These soils are shallow and well drained. They formed in residuum and colluvium derived from basalt and in loess. The surface layer is very cobbly loam or very stony loam. The upper of the subsoil is very gravelly clay loam, and the lower part is extremely cobbly clay loam. It is underlain by basalt at a depth of about 18 inches. Depth to basalt is 14 to 20 inches.

Of minor extent in this unit are Nevo soils on ridgetops, hillslopes, and benches; Fortyday, Drino, and Sohappy soils on hillslopes; and Aquolls, Orthents, Haploxerolls, and Weirman soils on flood plains.

This unit is used as sites for military training, for livestock grazing, and as wildlife habitat.

The main limitations for use as sites for military training are excessive wetness early in spring, slope, and the hazard of water erosion in winter. The main limitations for livestock grazing are depth to bedrock, rock fragments in the surface layer, slope, and accumulation of salt. The depth to bedrock and rock fragments in the surface layer of the Levnik and Disage soils restrict the construction of fences and pipelines and restrict seeding, the slope and depth to bedrock in the Nosser soils restrict the construction of livestock ponds, and the accumulation of salt in the Nosser soils is highly corrosive to uncoated steel.

## 8. Marlic-Zen

*Shallow and moderately deep, well drained, gently sloping to moderately steep soils in the 9- to 12-inch precipitation zone*

This map unit is mainly in the northern part of the survey area. Slope is 3 to 30 percent. The native vegetation is mainly grasses and shrubs. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

The Marlic soils are on dissected plateaus. These soils are shallow and well drained. They formed in loess, slope alluvium, and some residuum derived from basalt. The surface layer is loam. The subsoil is clay loam. It is underlain by basalt at a depth of about 15 inches. Depth to basalt is 12 to 20 inches.

The Zen soils are on plateaus, ridgetops, hillslopes, and benches. These soils are moderately deep and well drained. They formed in loess. The surface layer is silt loam. The upper part of the subsoil is silty clay loam, and the lower part is clay loam. It is underlain by basalt at a depth of about 27 inches. Depth to basalt is 20 to 40 inches.

Of minor extent in this unit are Ralock, Palerf, Norod, Patron, and Camaspatch soils on north-facing hillslopes; Niben and Clerf soils on south-facing hillslopes; Benwy soils on benches, toeslopes, and alluvial fans; and Aquolls, Orthents, Haploxerolls, and Weirman soils on flood plains.

This unit is used as sites for military training, for livestock grazing, and as wildlife habitat.

The main limitations for use as sites for military training are the excessive wetness of the Marlic soils early in spring; dustiness of the Marlic and Zen soils in summer; and hazard of water erosion in winter. The main limitations for livestock grazing are the depth to bedrock in the Marlic soils, which restricts the construction of fences and pipelines and restricts seeding, and the accumulation of salt in the Zen soils, which is highly corrosive to uncoated steel.

## Detailed Soil Map Units

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The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough

observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Benwy silt loam, 5 to 10 percent slopes, is a phase of the Benwy series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Vantage-Clerf complex, 15 to 30 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and

support little or no vegetation. Rock outcrop is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

### **1—Argabak very cobbly loam, 3 to 15 percent slopes**

#### **Composition**

*Argabak and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape*: Ridgetops, benches  
*Parent material*: Loess, residuum derived from basalt  
*Slope range*: 3 to 15 percent  
*Elevation*: 1,800 to 2,900 feet  
*Average annual precipitation*: 9 to 12 inches  
*Average annual air temperature*: 48 to 50 degrees F  
*Frost-free season (32 degrees F)*: 130 to 170 days

#### **Typical Profile**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)  
2 to 6 inches—brown extremely gravelly loam (subsoil)  
6 inches—basalt

#### **Soil Properties and Qualities**

*Depth class*: Very shallow  
*Drainage class*: Well drained  
*Permeability*: Moderately slow  
*Available water capacity*: Very low  
*Restriction to rooting depth*: Basalt at a depth of 5 to 12 inches

#### **Contrasting Inclusions**

- Vantage and Horseflat soils
- Clerf and Grinrod soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel)*: Moderate  
*Corrosivity (concrete)*: Low  
*Fences*: Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines*: Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds*: Severe—depth to bedrock  
*Seeding*: Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer  
*Brush control*: Severe—rock fragments in surface layer

### **2—Argabak very cobbly loam, 15 to 30 percent slopes**

#### **Composition**

*Argabak and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape*: South-facing ridgetops and hillslopes  
*Parent material*: Loess, residuum derived from basalt  
*Slope range*: 15 to 30 percent  
*Elevation*: 1,800 to 2,900 feet  
*Average annual precipitation*: 9 to 12 inches  
*Average annual air temperature*: 48 to 50 degrees F  
*Frost-free season (32 degrees F)*: 130 to 170 days

#### **Typical Profile**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)  
2 to 6 inches—brown extremely gravelly loam (subsoil)  
6 inches—basalt

#### **Soil Properties and Qualities**

*Depth class*: Very shallow  
*Drainage class*: Well drained  
*Permeability*: Moderately slow  
*Available water capacity*: Very low  
*Restriction to rooting depth*: Basalt at a depth of 5 to 12 inches

#### **Contrasting Inclusions**

- Vantage and Horseflat soils
- Clerf and Grinrod soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel)*: Moderate  
*Corrosivity (concrete)*: Low  
*Fences*: Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines*: Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds*: Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### **3—Argabak extremely cobbly loam, 3 to 15 percent slopes**

#### **Composition**

*Argabak and similar soils*—75 percent

*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* Ridgetops, benches

*Parent material:* Loess, residuum derived from basalt

*Slope range:* 3 to 15 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

#### **Typical Profile**

0 to 2 inches—yellowish brown extremely cobbly loam (surface layer)

2 to 6 inches—brown extremely gravelly loam (subsoil)

6 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Very shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 5 to 12 inches

#### **Contrasting Inclusions**

- Windry and Camaspatch soils
- Rock outcrop
- Whiskeydick soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### **4—Argabak extremely cobbly loam, 15 to 30 percent slopes**

#### **Composition**

*Argabak and similar soils*—75 percent

*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* South-facing ridgetops and hillslopes

*Parent material:* Loess, residuum derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

#### **Typical Profile**

0 to 2 inches—yellowish brown extremely cobbly loam (surface layer)

2 to 6 inches—brown extremely gravelly loam (subsoil)

6 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Very shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 5 to 12 inches

#### **Contrasting Inclusions**

- Windry and Camaspatch soils
- Blint soils
- Rock outcrop
- Whiskeydick soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

### **5—Argabak very stony loam, 3 to 15 percent slopes**

#### **Composition**

*Argabak and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* Ridgetops, benches  
*Parent material:* Loess, residuum derived from basalt  
*Slope range:* 3 to 15 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

0 to 2 inches—yellowish brown very stony loam (surface layer)  
 2 to 6 inches—brown extremely gravelly loam (subsoil)  
 6 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Very shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 5 to 12 inches

#### **Contrasting Inclusions**

- Horseflat and Vantage soils
- Rock outcrop
- Zen soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

### **6—Argabak very stony loam, 15 to 30 percent slopes**

#### **Composition**

*Argabak and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* South-facing ridgetops and benches  
*Parent material:* Loess, residuum derived from basalt  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

0 to 2 inches—yellowish brown very stony loam (surface layer)  
 2 to 6 inches—brown extremely gravelly loam (subsoil)  
 6 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Very shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 5 to 12 inches

#### **Contrasting Inclusions**

- Horseflat and Vantage soils
- Rock outcrop
- Zen soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## **7—Argabak-Camaspatch complex, 3 to 15 percent slopes**

### **Composition**

*Argabak and similar soils*—40 percent

*Camaspach and similar soils*—35 percent

*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Argabak—convex areas on ridgetops and benches; Camaspach—ridgetops, benches

*Parent material:* Argabak—loess, residuum derived from basalt; Camaspach—residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 2,500 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Argabak**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)

2 to 8 inches—brown extremely gravelly loam (subsoil)

8 inches—basalt

#### **Camaspach**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 6 inches—brown very gravelly clay loam (upper part of subsoil)

6 to 14 inches—brown extremely gravelly clay (lower part of subsoil)

14 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Argabak—very shallow; Camaspach—shallow

*Drainage class:* Well drained

*Permeability:* Argabak—moderately slow; Camaspach—slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Camaspach—basalt at a depth of 12 to 15 inches

### **Contrasting Inclusions**

- Rock outcrop
- Windry soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## **8—Argabak-Horseflat complex, 3 to 15 percent slopes**

### **Composition**

*Argabak and similar soils*—40 percent

*Horseflat and similar soils*—35 percent

*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Argabak—convex areas on ridgetops and benches; Horseflat—small mounds and slightly convex areas on ridgetops and benches

*Parent material:* Argabak—loess, residuum derived from basalt; Horseflat—colluvium and residuum derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Argabak**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)

2 to 6 inches—brown extremely gravelly loam (subsoil)

6 inches—basalt

#### **Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)

4 to 9 inches—brown very gravelly loam (lower part of surface layer)

9 to 16 inches—brown extremely gravelly loam (subsoil)

16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Argabak—very shallow; Horseflat—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Horseflat—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## **9—Argabak-Horseflat complex, 15 to 30 percent slopes**

### **Composition**

*Argabak and similar soils*—40 percent

*Horseflat and similar soils*—35 percent

*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Argabak—convex areas on ridgetops and hillslopes; Horseflat—small mounds and slightly convex areas on ridgetops and hillslopes

*Parent material:* Argabak—loess, residuum derived from basalt; Horseflat—colluvium and residuum derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Argabak**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)

2 to 6 inches—brown extremely gravelly loam (subsoil)

6 inches—basalt

#### **Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)

4 to 9 inches—brown very gravelly loam (lower part of surface layer)

9 to 16 inches—extremely gravelly loam (subsoil)

16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Argabak—very shallow; Horseflat—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Horseflat—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## 10—Argabak-Vantage complex, 3 to 15 percent slopes

### Composition

*Argabak and similar soils*—40 percent

*Vantage and similar soils*—35 percent

*Contrasting inclusions*—25 percent

### Setting

*Position on landscape:* Argabak—convex areas on ridgetops and benches; Vantage—slightly convex and smooth areas on ridgetops and benches

*Parent material:* Argabak—loess, residuum derived from basalt; Vantage—residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Argabak

0 to 2 inches—yellowish brown very cobbly loam (surface layer)

2 to 6 inches—brown extremely gravelly loam (subsoil)

6 inches—basalt

#### Vantage

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)

8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

17 inches—basalt

### Soil Properties and Qualities

*Depth class:* Argabak—very shallow; Vantage—shallow

*Drainage class:* Well drained

*Permeability:* Argabak—moderately slow; Vantage—slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Vantage—basalt at a depth of 12 to 20 inches

### Contrasting Inclusions

- Clerf and Grinrod soils

### Major Uses

Military training, livestock grazing, wildlife habitat

## Livestock Grazing

### Development limitations

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## 11—Argabak-Whiskeydick complex, 3 to 15 percent slopes

### Composition

*Argabak and similar soils*—45 percent

*Whiskeydick and similar soils*—30 percent

*Contrasting inclusions*—25 percent

### Setting

*Position on landscape:* Argabak—areas between mounds on south-facing ridgetops and hillslopes; Whiskeydick—mounds on south-facing ridgetops and hillslopes

*Parent material:* Argabak—loess, residuum derived from basalt; Whiskeydick—residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### Typical Profile

#### Argabak

0 to 2 inches—yellowish brown extremely cobbly loam (surface layer)

2 to 6 inches—brown extremely gravelly loam (subsoil)

6 inches—basalt

#### Whiskeydick

0 to 4 inches—grayish brown very cobbly loam (surface layer)

4 to 11 inches—brown very gravelly clay loam (upper part of subsoil)

11 to 22 inches—brown extremely gravelly clay (lower part of subsoil)

22 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Argabak—very shallow; Whiskeydick—moderately deep  
*Drainage class:* Well drained  
*Permeability:* Argabak—moderately slow; Whiskeydick—slow  
*Available water capacity:* Argabak—very low; Whiskeydick—low  
*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Whiskeydick—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Camaspatch and Windry soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Argabak)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

#### **(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

## **12—Argabak-Whiskeydick complex, 15 to 30 percent slopes**

### **Composition**

*Argabak and similar soils*—45 percent  
*Whiskeydick and similar soils*—30 percent  
*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Argabak—areas between mounds on south-facing ridgetops and hillslopes; Whiskeydick—mounds on south-facing ridgetops and hillslopes  
*Parent material:* Argabak—loess, residuum derived from basalt; Whiskeydick—residuum and colluvium derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 2,900 to 4,200 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Argabak**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)  
 2 to 6 inches—brown extremely gravelly loam (subsoil)  
 6 inches—basalt

#### **Whiskeydick**

0 to 4 inches—grayish brown very cobbly loam (surface layer)  
 4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)  
 10 to 21 inches—dark brown very cobbly clay (middle part of subsoil)  
 21 to 30 inches—brown extremely cobbly clay (lower part of subsoil)  
 30 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Argabak—very shallow; Whiskeydick—moderately deep  
*Drainage class:* Well drained  
*Permeability:* Argabak—moderately slow; Whiskeydick—slow  
*Available water capacity:* Argabak—very low; Whiskeydick—low  
*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Whiskeydick—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Camaspatch and Windry soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

## **Livestock Grazing**

### **Development limitations**

#### **(Argabak)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

#### **(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### **13—Argabak-Windry complex, 3 to 15 percent slopes**

#### **Composition**

*Argabak and similar soils—*40 percent

*Windry and similar soils—*35 percent

*Contrasting inclusions—*25 percent

#### **Setting**

*Position on landscape:* Argabak—slightly convex areas on ridgetops and benches; Windry—slightly concave areas and small mounds on ridgetops and hillslopes

*Parent material:* Argabak—loess, residuum derived from basalt; Windry—colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

#### **Typical Profile**

##### **Argabak**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)

2 to 6 inches—brown extremely gravelly loam (subsoil)

6 inches—basalt

##### **Windry**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)

3 to 7 inches—brown very gravelly clay loam (lower part of surface layer)

7 to 15 inches—brown extremely cobbly clay loam (subsoil)

15 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Argabak—very shallow; Windry—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Windry—basalt at a depth of 14 to 20 inches

#### **Contrasting Inclusions**

- Whiskeydick soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### **14—Argabak-Zen-Grinrod complex, 3 to 15 percent slopes**

#### **Composition**

*Argabak and similar soils—*35 percent

*Zen and similar soils—*30 percent

*Grinrod and similar soils—*25 percent

*Contrasting inclusions—*10 percent

### Setting

*Position on landscape:* Argabak—convex areas and areas between mounds on ridgetops and benches; Zen—concave areas and mounds on ridgetops and benches; Grinrod—areas between mounds on ridgetops and benches

*Parent material:* Argabak—loess, residuum derived from basalt; Zen—loess; Grinrod—colluvium and residuum derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Argabak

0 to 2 inches—yellowish brown very cobbly loam (surface layer)

2 to 6 inches—brown extremely gravelly loam (subsoil)

6 inches—basalt

#### Zen

0 to 10 inches—brown silt loam (surface layer)

10 to 16 inches—brown silty clay loam (upper part of subsoil)

16 to 22 inches—yellowish brown silty clay loam (middle part of subsoil)

22 to 27 inches—yellowish brown clay loam (lower part of subsoil)

27 inches—basalt

#### Grinrod

0 to 4 inches—brown very cobbly loam (surface layer)

4 to 11 inches—brown very gravelly loam (upper part of subsoil)

11 to 18 inches—yellowish brown very gravelly loam (middle part of subsoil)

18 to 25 inches—light yellowish brown very gravelly loam (lower part of subsoil)

25 inches—basalt

### Soil Properties and Qualities

*Depth class:* Argabak—very shallow; Zen and Grinrod—moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Argabak—very low; Zen—high; Grinrod—low

*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Zen and Grinrod—basalt at a depth of 20 to 40 inches

### Contrasting Inclusions

- Vantage and Horseflat soils
- Benwy soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Argabak)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—stones on surface, rock fragments in surface layer

##### (Zen)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—depth to bedrock

*Pipelines:* Moderate—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

##### (Grinrod)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—stones on surface, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### 15—Argabak-Zen-Grinrod complex, 15 to 30 percent slopes

#### Setting

*Argabak and similar soils—*35 percent

*Zen and similar soils—*30 percent

*Grinrod and similar soils—*25 percent

*Contrasting inclusions—*10 percent

### Setting

*Position on landscape:* Argabak—convex areas and areas between mounds on south-facing ridgetops and hillslopes; Zen—concave areas and mounds on south-facing ridgetops and hillslopes; Grinrod—areas between mounds on south-facing ridgetops and hillslopes

*Parent material:* Argabak—loess, residuum derived from basalt; Zen—loess; Grinrod—colluvium and residuum derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Argabak

0 to 2 inches—yellowish brown very cobbly loam (surface layer)  
2 to 6 inches—brown extremely gravelly loam (subsoil)  
6 inches—basalt

#### Zen

0 to 10 inches—brown silt loam (surface layer)  
10 to 16 inches—brown silty clay loam (upper part of subsoil)  
16 to 22 inches—yellowish brown silty clay loam (middle part of subsoil)  
22 to 27 inches—yellowish brown clay loam (lower part of subsoil)  
27 inches—basalt

#### Grinrod

0 to 4 inches—brown very cobbly loam (surface layer)  
4 to 11 inches—brown very gravelly clay loam (upper part of subsoil)  
11 to 18 inches—yellowish brown very gravelly loam (middle part of subsoil)  
18 to 25 inches—light yellowish brown very gravelly loam (lower part of subsoil)  
25 inches—basalt

### Soil Properties and Qualities

*Depth class:* Argabak—very shallow; Zen and Grinrod—moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Argabak—very low; Zen—high; Grinrod—low

*Restriction to rooting depth:* Argabak—basalt at a depth of 5 to 12 inches; Zen and Grinrod—basalt at a depth of 20 to 40 inches

### Contrasting Inclusions

- Vantage and Horseflat soils
- Benwy soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development Limitations

##### (Argabak)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—stones on surface, rock fragments in surface layer

##### (Zen)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—depth to bedrock, slope

*Pipelines:* Moderate—depth to bedrock, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

##### (Grinrod)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—stones on surface, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### 16—Argids, strongly sloping

#### Composition

*Argids and similar soils:*—75 percent

*Contrasting inclusions:*—25 percent

#### Setting

*Position on landscape:* South-facing terraces

*Parent material:* Alluvium

*Slope range:* 3 to 15 percent  
*Elevation:* 500 to 1,200 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Representative Profile**

0 to 4 inches—brown gravelly loamy sand (surface layer)  
 4 to 10 inches—brown cobbly sandy clay loam (upper part of subsoil)  
 10 to 15 inches—brown very cobbly sandy clay loam (middle part of subsoil)  
 15 to 24 inches—light brownish gray very cobbly sandy clay loam (lower part of subsoil)  
 24 to 30 inches—light gray, calcareous very cobbly loamy sand (upper part of substratum)  
 30 to 60 inches—grayish brown very cobbly sand (lower part of substratum)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Moderate  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Soils that have a cobbly or stony surface layer

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Moderate—rock fragments in surface layer  
*Livestock ponds:* Severe—seepage  
*Seeding:* Severe—texture of surface layer  
*Brush control:* Slight

## **17—Argids, moderately steep**

### **Composition**

*Argids and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* North-facing terraces  
*Parent material:* Alluvium  
*Slope range:* 15 to 30 percent

*Elevation:* 500 to 1,200 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Representative Profile**

0 to 10 inches—brown sandy loam (surface layer)  
 10 to 35 inches—brown cobbly sandy clay loam (subsoil)  
 35 to 41 inches—light gray, calcareous very cobbly loamy sand (upper part of substratum)  
 41 to 60 inches—grayish brown very cobbly sand (lower part of substratum)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Moderate  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Soils that have a cobbly or stony surface layer

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Moderate—rock fragments in surface layer  
*Livestock ponds:* Severe—seepage  
*Seeding:* Severe—texture of surface layer  
*Brush control:* Slight

## **18—Argixerolls-Durixerolls complex, steep north**

### **Composition**

*Argixerolls and similar soils—*50 percent  
*Durixerolls and similar soils—*25 percent  
*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Argixerolls—north-facing alluvial fan escarpments; Durixerolls—north-facing shoulders on alluvial fan escarpments  
*Parent material:* Loess, alluvium  
*Slope range:* 30 to 60 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Representative Profile**

#### **Argixerolls**

0 to 15 inches—dark grayish brown silt loam (surface layer)  
 15 to 43 inches—brown silty clay loam (upper part of subsoil)  
 43 to 60 inches—brown gravelly clay loam (lower part of subsoil)

#### **Durixerolls**

0 to 9 inches—brown very gravelly loam (surface layer)  
 9 to 12 inches—brown very gravelly loam (upper part of subsoil)  
 12 to 21 inches—brown extremely gravelly loam (lower part of subsoil)  
 21 to 31 inches—indurated, lime- and silica-cemented hardpan  
 31 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Argixerolls—very deep; Durixerolls—moderately deep or shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Argixerolls—slow; Durixerolls—moderately slow above the hardpan

*Available water capacity:* Argixerolls—very high; Durixerolls—low

*Potential rooting depth:* Argixerolls—more than 60 inches

*Restriction to rooting depth:* Durixerolls—hardpan at a depth of 10 to 40 inches

### **Contrasting Inclusions**

- Horseflat and Vantage soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

#### **(Argixerolls)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

#### **(Durixerolls)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, depth to hardpan

*Pipelines:* Severe—slope, depth to hardpan

*Livestock ponds:* Severe—slope, depth to hardpan

*Seeding:* Severe—slope

*Brush control:* Severe—slope

### **19—Argixerolls-Durixerolls complex, steep south**

#### **Composition**

*Argixerolls and similar soils—*45 percent

*Durixerolls and similar soils—*35 percent

*Contrasting inclusions—*20 percent

#### **Setting**

*Position on landscape:* Argixerolls—south-facing alluvial fan escarpments; Durixerolls—south-facing convex areas on alluvial fan escarpments

*Parent material:* Loess, alluvium

*Slope range:* 30 to 60 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Representative Profile**

#### **Argixerolls**

0 to 6 inches—dark brown cobbly clay loam (surface layer)  
 6 to 12 inches—dark brown gravelly clay loam (upper part of subsoil)  
 12 to 22 inches—brown very gravelly clay loam (middle part of subsoil)  
 22 to 60 inches—yellowish brown very gravelly clay loam (lower part of subsoil)

#### **Durixerolls**

0 to 6 inches—brown cobbly clay loam (surface layer)  
 6 to 14 inches—brown gravelly clay loam (upper part of subsoil)  
 14 to 23 inches—brown very gravelly clay loam (lower part of subsoil)  
 23 to 33 inches—indurated, lime- and silica-cemented hardpan  
 33 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Argixerolls—very deep; Durixerolls—moderately deep or shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Argixerolls—slow; Durixerolls—moderately slow above the hardpan

*Available water capacity:* Argixerolls—high; Durixerolls—low

*Potential rooting depth:* Argixerolls—more than 60 inches

*Restriction to rooting depth:* Durixerolls—hardpan at a depth of 10 to 40 inches

### **Contrasting Inclusions**

- Soils that have a hardpan at a depth of less than 20 inches

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Argixerolls)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

##### **(Durixerolls)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, depth to hardpan

*Pipelines:* Severe—slope, depth to hardpan

*Livestock ponds:* Severe—slope, depth to hardpan

*Seeding:* Severe—slope, droughty surface layer

*Brush control:* Severe—slope

## **20—Benwy silt loam, 5 to 10 percent slopes**

### **Composition**

*Benwy and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Old alluvial fans

*Parent material:* Loess, slope alluvium

*Slope range:* 5 to 10 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 10 inches—dark yellowish brown silt loam (lower part of surface layer)

10 to 37 inches—yellowish brown silt loam (upper part of subsoil)

37 to 46 inches—pale brown, calcareous loam (middle part of subsoil)

46 to 60 inches—pale brown, calcareous gravelly loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Zen soils
- Selah soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Slight

*Seeding:* Slight

*Brush control:* Slight

## **21—Benwy silt loam, 10 to 15 percent slopes**

### **Composition**

*Benwy and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Alluvial fans, toeslopes

*Parent material:* Loess, slope alluvium

*Slope range:* 10 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 4 inches—brown silt loam (surface layer)  
 4 to 9 inches—dark yellowish brown silt loam (upper part of subsoil)  
 9 to 14 inches—yellowish brown silt loam (next part of subsoil)  
 14 to 33 inches—yellowish brown gravelly silt loam (next part of subsoil)  
 33 to 45 inches—light yellowish brown, calcareous gravelly silt loam (lower part of subsoil)  
 45 inches—indurated, lime- and silica-cemented hardpan

**Soil Properties and Qualities**

*Depth class:* Deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderate above the hardpan  
*Available water capacity:* Very high  
*Restriction to rooting depth:* Hardpan at a depth of 40 to 60 inches

**Contrasting Inclusions**

- Zen soils
- Selah soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Moderate—depth to hardpan, slope  
*Seeding:* Slight  
*Brush control:* Slight

**22—Benwy silt loam, 15 to 30 percent slopes****Composition**

*Benwy and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

**Setting**

*Position on landscape:* South-facing old alluvial fans and toeslopes  
*Parent material:* Loess, slope alluvium  
*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 4 inches—brown silt loam (surface layer)  
 4 to 9 inches—dark yellowish brown silt loam (upper part of subsoil)  
 9 to 14 inches—yellowish brown silt loam (next part of subsoil)  
 14 to 33 inches—yellowish brown gravelly silt loam (next part of subsoil)  
 33 to 45 inches—light yellowish brown, calcareous gravelly silt loam (lower part of subsoil)  
 45 inches—indurated, lime- and silica-cemented hardpan

**Soil Properties and Qualities**

*Depth class:* Deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderate above the hardpan  
*Available water capacity:* Very high  
*Restriction to rooting depth:* Hardpan at a depth of 40 to 60 inches

**Contrasting Inclusions**

- Zen, Grinrod, and Clerf soils
- Selah soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—slope  
*Pipelines:* Moderate—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

**23—Benwy-Vantage-Argabak complex, 3 to 15 percent slopes****Composition**

*Benwy and similar soils*—35 percent  
*Vantage and similar soils*—30 percent  
*Argabak and similar soils*—25 percent  
*Contrasting inclusions*—10 percent

### Setting

*Position on landscape:* Benwy—concave areas and mounds on benches; Vantage—slightly convex areas and areas between mounds on benches; Argabak—convex areas and areas between mounds on benches

*Parent material:* Benwy—loess, slope alluvium; Vantage—residuum and colluvium derived from basalt, loess; Argabak—loess, residuum derived from basalt

*Slope range:* Benwy—5 to 15 percent; Vantage and Argabak—3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Benwy

0 to 4 inches—brown silt loam (surface layer)  
 4 to 9 inches—dark yellowish brown silt loam (upper part of subsoil)  
 9 to 14 inches—yellowish brown silt loam (next part of subsoil)  
 14 to 33 inches—yellowish brown gravelly silt loam (next part of subsoil)  
 33 to 45 inches—light yellowish brown gravelly silt loam (lower part of subsoil)  
 45 inches—indurated, lime- and silica-cemented hardpan

#### Vantage

0 to 3 inches—brown very cobbly loam (surface layer)  
 3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)  
 8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 17 inches—basalt

#### Argabak

0 to 2 inches—yellowish brown very cobbly loam (surface layer)  
 2 to 6 inches—brown extremely gravelly loam (subsoil)  
 6 inches—basalt

### Soil Properties and Qualities

*Depth class:* Benwy—deep to a hardpan; Vantage—shallow; Argabak—very shallow

*Drainage class:* Well drained

*Permeability:* Benwy—moderate above the hardpan; Vantage—slow; Argabak—moderately slow

*Available water capacity:* Benwy—very high; Vantage and Argabak—very low

*Restriction to rooting depth:* Benwy—hardpan at a depth of 40 to 60 inches; Vantage—basalt at a depth of 12 to 20 inches; Argabak—basalt at a depth of 5 to 12 inches

### Contrasting Inclusions

- Grinrod, Clerf, and Zen soils
- Selah soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Benwy)

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Moderate—depth to hardpan  
*Seeding:* Slight  
*Brush control:* Slight

##### (Vantage)

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—stones on surface, rock fragments in surface layer

##### (Argabak)

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—stones on surface, rock fragments in surface layer

## 24—Benwy-Vantage-Argabak complex, 15 to 30 percent slopes

### Composition

*Benwy and similar soils*—35 percent  
*Vantage and similar soils*—30 percent  
*Argabak and similar soils*—25 percent  
*Contrasting inclusions*—10 percent

### Setting

*Position on landscape:* Benwy—concave areas and mounds on south-facing benches; Vantage—slightly convex areas and areas between mounds on south-facing benches and hillslopes; Argabak—convex areas and areas between mounds on south-facing benches and hillslopes  
*Parent material:* Benwy—loess, slope alluvium; Vantage—residuum and colluvium derived from basalt, loess; Argabak—loess, residuum derived from basalt  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Benwy

0 to 4 inches—brown silt loam (surface layer)  
 4 to 9 inches—dark yellowish brown silt loam (upper part of subsoil)  
 9 to 14 inches—yellowish brown silt loam (next part of subsoil)  
 14 to 33 inches—yellowish brown gravelly silt loam (next part of subsoil)  
 33 to 45 inches—light yellowish brown, calcareous gravelly silt loam (lower part of subsoil)  
 45 inches—indurated, lime- and silica-cemented hardpan

#### Vantage

0 to 3 inches—brown very cobbly loam (surface layer)  
 3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)  
 8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 17 inches—basalt

#### Argabak

0 to 2 inches—yellowish brown very cobbly loam (surface layer)  
 2 to 6 inches—brown extremely gravelly loam (subsoil)  
 6 inches—basalt

### Soil Properties and Qualities

*Depth class:* Benwy—deep to a hardpan; Vantage—shallow; Argabak—very shallow  
*Drainage class:* Well drained  
*Permeability:* Benwy—moderate above the hardpan; Vantage—slow; Argabak—moderately slow  
*Available water capacity:* Benwy—very high; Vantage and Argabak—very low  
*Restriction to rooting depth:* Benwy—hardpan at a depth of 40 to 60 inches; Vantage—basalt at a depth of 12 to 20 inches; Argabak—basalt at a depth of 5 to 12 inches

### Contrasting Inclusions

- Grinrod and Clerf soils
- Selah soils
- Rock outcrop

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

### Development limitations

#### (Benwy)

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—slope  
*Pipelines:* Moderate—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

#### (Vantage and Argabak)

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—stones on surface, rock fragments in surface layer

## 25—Blint very cobbly loam, 15 to 30 percent slopes

### Composition

*Blint and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

**Setting**

*Position on landscape:* North-facing hillslopes  
*Parent material:* Colluvium derived from basalt, loess mixed with volcanic ash in the upper part  
*Slope range:* 15 to 30 percent  
*Elevation:* 2,500 to 3,300 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

**Typical Profile**

0 to 6 inches—brown very cobbly loam (upper part of surface layer)  
 6 to 14 inches—brown very gravelly loam (lower part of surface layer)  
 14 to 22 inches—brown very gravelly loam (upper part of subsoil)  
 22 to 37 inches—yellowish brown extremely gravelly loam (lower part of subsoil)  
 37 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Moderately deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Windy soils
- Lainand soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

**26—Blint very cobbly loam, 45 to 60 percent slopes****Composition**

*Blint and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* North-facing hillslopes  
*Parent material:* Colluvium derived from basalt, loess mixed with volcanic ash in the upper part

*Slope range:* 45 to 60 percent  
*Elevation:* 2,500 to 3,300 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

**Typical Profile**

0 to 6 inches—brown very cobbly loam (upper part of surface layer)  
 6 to 14 inches—brown very gravelly loam (lower part of surface layer)  
 14 to 22 inches—brown very gravelly loam (upper part of subsoil)  
 22 to 37 inches—brown extremely gravelly loam (lower part of subsoil)  
 37 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Moderately deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Windy soils
- Lainand soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

## **27—Blint-Windry complex, 15 to 30 percent slopes**

### **Composition**

*Blint and similar soils*—45 percent

*Windry and similar soils*—30 percent

*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Blint—concave areas on north-facing hillslopes; Windry—convex areas on north-facing hillslopes

*Parent material:* Blint—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Windry—colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Blint**

0 to 6 inches—brown very cobbly loam (upper part of surface layer)

6 to 14 inches—brown very gravelly loam (lower part of surface layer)

14 to 22—brown very gravelly loam (upper part of subsoil)

22 to 37 inches—brown extremely gravelly loam (lower part of subsoil)

37 inches—basalt

#### **Windry**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)

3 to 7 inches—brown very gravelly clay loam (lower part of surface layer)

7 to 15 inches—brown extremely cobbly clay loam (subsoil)

15 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Blint—moderately deep; Windry—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Blint—low; Windry—very low

*Restriction to rooting depth:* Blint—basalt at a depth of 20 to 40 inches; Windry—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Lainand soils
- Argabak soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Blint)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

##### **(Windry)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## **28—Brehm silt loam, 5 to 10 percent slopes**

### **Composition**

*Brehm and similar soils*—75 percent

*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Alluvial fans  
*Parent material:* Loess, alluvium  
*Slope range:* 5 to 10 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 21 inches—pale brown, calcareous very cobbly loam (upper part of subsoil)  
 21 to 24 inches—light yellowish brown, calcareous very cobbly loam (lower part of subsoil)  
 24 to 34 inches—indurated, lime- and silica-cemented hardpan  
 34 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderately slow above the hardpan  
*Available water capacity:* Low  
*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Benwy soils
- Gorst and Gorskel soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Slight  
*Brush control:* Slight

## **29—Brehm-Gorskel-Gorst complex, 10 to 15 percent slopes**

### **Composition**

*Brehm and similar soils*—35 percent  
*Gorskel and similar soils*—30 percent

*Gorst and similar soils*—25 percent  
*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Old alluvial fans  
*Parent material:* Brehm and Gorskel—loess, alluvium; Gorst—loess  
*Slope range:* 10 to 15 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Brehm**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 21 inches—pale brown, calcareous very cobbly loam (upper part of subsoil)  
 21 to 24 inches—light yellowish brown, calcareous very cobbly loam (lower part of subsoil)  
 24 to 34 inches—indurated, lime- and silica-cemented hardpan  
 34 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Gorskel**

0 to 5 inches—brown silt loam (surface layer)  
 5 to 10 inches—brown gravelly silt loam (upper part of subsoil)  
 10 to 16 inches—yellowish brown very cobbly clay loam (lower part of subsoil)  
 16 to 26 inches—indurated, lime- and silica-cemented hardpan  
 26 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Gorst**

0 to 6 inches—brown loam (surface layer)  
 6 to 9 inches—brown loam (upper part of subsoil)  
 9 to 14 inches—yellowish brown gravelly loam (lower part of subsoil)  
 14 to 24 inches—indurated, lime- and silica-cemented hardpan  
 24 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Brehm—moderately deep to a hardpan; Gorskel and Gorst—shallow to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Brehm and Gorskel—moderately slow above the hardpan; Gorst—moderate above the hardpan

*Available water capacity:* Low

*Restriction to rooting depth:* Brehm—hardpan at a depth of 20 to 40 inches; Gorskel—hardpan at a depth of 10 to 20 inches; Gorst—hardpan at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Benwy soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Brehm)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—depth to bedrock

*Pipelines:* Moderate—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

#### **(Gorskel)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock

*Brush control:* Slight

#### **(Gorst)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock

*Brush control:* Slight

### **30—Caliralls silt loam, 10 to 15 percent slopes**

#### **Composition**

*Caliralls and similar soils—*75 percent

*Contrasting inclusions—*25 percent

#### **Setting**

*Position on landscape:* Hillslopes

*Parent material:* Loess, colluvium derived from basalt

*Slope range:* 10 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 8 inches—brown silt loam (surface layer)

8 to 30 inches—yellowish brown silt loam and gravelly silt loam (upper part of subsoil)

30 to 42 inches—yellowish brown gravelly silt loam (middle part of subsoil)

42 to 60 inches—yellowish brown gravelly clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Grinrod and Clerf soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—slope

*Seeding:* Slight

*Brush control:* Slight

### **31—Caliralls silt loam, 15 to 30 percent slopes**

#### **Composition**

*Caliralls and similar soils—*75 percent

*Contrasting inclusions—*25 percent

#### **Setting**

*Position on landscape:* South-facing hillslopes

*Parent material:* Loess, colluvium derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 8 inches—brown silt loam (surface layer)  
 8 to 30 inches—yellowish brown silt loam and gravelly silt loam (upper part of subsoil)  
 30 to 42 inches—yellowish brown, calcareous gravelly silt loam (middle part of subsoil)  
 42 to 60 inches—yellowish brown, calcareous gravelly clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Very high  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Grinrod and Clerf soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

## **32—Caliralls-Clerf complex, 15 to 30 percent slopes**

### **Composition**

*Caliralls and similar soils*—45 percent  
*Clerf and similar soils*—35 percent  
*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Caliralls—strongly concave areas on hillslopes; Clerf—convex areas and slightly concave areas on hillslopes  
*Parent material:* Caliralls—loess, colluvium derived from basalt; Clerf—residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Caliralls**

0 to 8 inches—brown silt loam (surface layer)  
 8 to 30 inches—yellowish brown silt loam and gravelly silt loam (upper part of subsoil)  
 30 to 42 inches—yellowish brown gravelly silt loam (middle part of subsoil)  
 42 to 60 inches—yellowish brown gravelly clay loam (lower part of subsoil)

#### **Clerf**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)  
 3 to 6 inches—grayish brown very gravelly loam (lower part of surface layer)  
 6 to 12 inches—brown very gravelly clay (upper part of subsoil)  
 12 to 24 inches—brown extremely cobbly clay (lower part of subsoil)  
 24 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Caliralls—very deep; Clerf—moderately deep  
*Drainage class:* Well drained  
*Permeability:* Caliralls—moderately slow; Clerf—slow  
*Available water capacity:* Caliralls—very high; Clerf—low  
*Potential rooting depth:* Caliralls—more than 60 inches  
*Restriction to rooting depth:* Clerf—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Vantage soils
- Rock outcrop
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

#### **(Caliralls)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low

*Fences:* Slight  
*Pipelines:* Moderate—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

**(Clerf)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

**33—Caliralls-Clerf complex, 30 to 45 percent slopes****Composition**

*Caliralls and similar soils*—45 percent  
*Clerf and similar soils*—35 percent  
*Contrasting inclusions*—20 percent

**Setting**

*Position on landscape:* Caliralls—strongly concave and slightly concave areas on hillslopes; Clerf—convex areas and slightly concave areas on hillslopes  
*Parent material:* Caliralls—loess, colluvium derived from basalt; Clerf—residuum and colluvium derived from basalt, loess  
*Slope range:* 30 to 45 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile****Caliralls**

0 to 8 inches—brown silt loam (surface layer)  
 8 to 30 inches—yellowish brown silt loam and gravelly silt loam (upper part of subsoil)  
 30 to 42 inches—yellowish brown gravelly silt loam (middle part of subsoil)  
 42 to 60 inches—yellowish brown gravelly clay loam (lower part of subsoil)

**Clerf**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)

3 to 6 inches—grayish brown very gravelly loam (lower part of surface layer)  
 6 to 12 inches—dark yellowish brown very gravelly clay (upper part of subsoil)  
 12 to 24 inches—brown extremely cobbly clay (lower part of subsoil)  
 24 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Caliralls—very deep; Clerf—moderately deep  
*Drainage class:* Well drained  
*Permeability:* Caliralls—moderately slow; Clerf—slow  
*Available water capacity:* Caliralls—very high; Clerf—low  
*Potential rooting depth:* Caliralls—more than 60 inches  
*Restriction to rooting depth:* Clerf—basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Vantage soils
- Rock outcrop
- Argabak soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development Limitations****(Caliralls)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—slope  
*Pipelines:* Severe—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Severe—slope  
*Brush control:* Severe—slope

**(Clerf)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—slope, rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—slope, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—slope, rock fragments in surface layer

### 34—Caliralls-Horseflat complex, 15 to 30 percent slopes

#### **Composition**

*Caliralls and similar soils*—45 percent  
*Horseflat and similar soils*—35 percent  
*Contrasting inclusions*—20 percent

#### **Setting**

*Position on landscape:* Caliralls—concave areas on hillslopes; Horseflat—convex areas on hillslopes  
*Parent material:* Caliralls—loess, colluvium derived from basalt; Horseflat—colluvium and residuum derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

##### **Caliralls**

0 to 8 inches—brown silt loam (surface layer)  
 8 to 30 inches—yellowish brown silt loam and gravelly silt loam (upper part of subsoil)  
 30 to 42 inches—yellowish brown, calcareous gravelly silt loam (middle part of subsoil)  
 42 to 60 inches—yellowish brown, calcareous gravelly clay loam (lower part of subsoil)

##### **Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)  
 4 to 9 inches—brown very gravelly loam (lower part of surface layer)  
 9 to 16 inches—brown extremely gravelly loam (subsoil)  
 16 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Caliralls—very deep; Horseflat—shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Caliralls—very high; Horseflat—very low  
*Potential rooting depth:* Caliralls—more than 60 inches  
*Restriction to rooting depth:* Horseflat—basalt at a depth of 14 to 20 inches

#### **Contrasting Inclusions**

- Grinrod soils
- Clerf soils
- Rock outcrop
- Argabak soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Caliralls)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

##### **(Horseflat)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock, slope  
*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

### 35—Camaspach very cobbly loam, 3 to 15 percent slopes

#### **Composition**

*Camaspach and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* Ridgetops, benches  
*Parent Material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 3 to 15 percent  
*Elevation:* 2,900 to 4,200 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

#### **Typical Profile**

0 to 2 inches—grayish brown very cobbly loam (surface layer)  
 2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)  
 12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)  
 19 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 15 to 20 inches

### **Contrasting Inclusions**

- Whiskeydick soils
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## **36—Camaspatch very cobbly loam, 15 to 30 percent slopes**

### **Composition**

*Camaspatch and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* South-facing hillslopes and ridgetops

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)

12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)

19 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 15 to 20 inches

### **Contrasting Inclusions**

- Whiskeydick soils
- Rock outcrop
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## **37—Camaspatch very cobbly loam, thin, 3 to 15 percent slopes**

### **Composition**

*Camaspatch and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Ridgetops, benches

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 2,500 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 5 inches—brown very gravelly clay loam (upper part of subsoil)  
 5 to 13 inches—brown extremely gravelly clay (lower part of subsoil)  
 13 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 12 to 15 inches

### **Contrasting Inclusions**

- Whiskeydick soils
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

## **38—Camaspatch very cobbly loam, thin, 15 to 30 percent slopes**

### **Composition**

*Camaspatch and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* South-facing hillslopes and ridgetops  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 2,900 to 4,200 feet  
*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 2 inches—grayish brown very cobbly loam (surface layer)  
 2 to 5 inches—brown very gravelly clay loam (upper part of subsoil)  
 5 to 13 inches—brown extremely gravelly clay (lower part of subsoil)  
 13 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Whiskeydick soils
- Windry soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

## **39—Camaspatch-Colockum complex, 15 to 30 percent slopes**

### **Composition**

*Camaspatch and similar soils*—40 percent  
*Colockum and similar soils*—35 percent  
*Contrasting inclusions*—25 percent

### Setting

*Position on landscape:* Camaspatch—convex areas on south-facing hillslopes; Colockum—concave areas on south-facing hillslopes

*Parent material:* Camaspatch—residuum and colluvium derived from basalt, loess; Colockum—loess over material derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### Typical Profile

#### Camaspatch

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)

12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)

19 inches—basalt

#### Colockum

0 to 4 inches—dark grayish brown silt loam (surface layer)

4 to 20 inches—brown and yellowish brown silt loam (upper part of subsoil)

20 to 33 inches—light yellowish brown silt loam (next part of subsoil)

33 to 43 inches—yellowish brown, calcareous cobbly silty clay loam (next part of subsoil)

43 to 60 inches—light brown, calcareous silty clay loam (lower part of subsoil)

### Soil Properties and Qualities

*Depth class:* Camaspatch—shallow; Colockum—very deep

*Drainage class:* Well drained

*Permeability:* Camaspatch—slow; Colockum—moderately slow

*Available water capacity:* Camaspatch—very low; Colockum—very high

*Restriction to rooting depth:* Camaspatch—basalt at a depth of 12 to 20 inches

*Potential rooting depth:* Colockum—more than 60 inches

### Contrasting Inclusions

- Whiskeydick soils
- Rock outcrop
- Argabak soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Camaspatch)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

##### (Colockum)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

### 40—Camaspatch-Tanksel complex, 30 to 45 percent slopes

#### Composition

*Camaspatch and similar soils—*45 percent

*Tanksel and similar soils—*35 percent

*Contrasting inclusions—*20 percent

#### Setting

*Position on landscape:* Camaspatch—convex areas on north-facing hillslopes; Tanksel—concave areas on north-facing hillslopes

*Parent material:* Camaspatch—residuum and colluvium derived from basalt, loess; Tanksel—residuum, colluvium, and slope alluvium derived from basalt, loess mixed with volcanic ash in the upper part

*Slope range:* 30 to 45 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### Typical Profile

#### Camaspatch

- 0 to 2 inches—grayish brown very cobbly loam (surface layer)
- 2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)
- 12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)
- 19 inches—basalt

#### Tanksel

- 0 to 4 inches—dark grayish brown loam (upper part of surface layer)
- 4 to 12 inches—dark grayish brown gravelly loam (lower part of surface layer)
- 12 to 22 inches—brown very gravelly clay loam (upper part of subsoil)
- 22 to 30 inches—yellowish brown very gravelly clay loam (middle part of subsoil)
- 30 to 34 inches—brown extremely gravelly clay (lower part of subsoil)
- 34 inches—basalt

### Soil Properties and Qualities

*Depth class:* Camaspatch—shallow; Tanksel—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Camaspatch—very low; Tanksel—moderate

*Restriction to rooting depth:* Camaspatch—basalt at a depth of 15 to 20 inches; Tanksel—basalt at a depth of 20 to 40 inches

### Contrasting Inclusions

- Lainand soils
- Rock outcrop
- Argabak soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Camaspatch)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—slope, depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, slope, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer, slope

##### (Tanksel)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

*Brush control:* Severe—slope

## 41—Camaspatch-Tanksel-Lainand complex, 45 to 60 percent slopes

### Composition

*Camaspatch and similar soils*—35 percent

*Tanksel and similar soils*—30 percent

*Lainand and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### Setting

*Position on landscape:* Camaspatch—convex areas on north-facing hillslopes; Tanksel—slightly concave areas on north-facing hillslopes; Lainand—strongly concave areas on north-facing hillslopes

*Parent material:* Camaspatch—residuum and colluvium derived from basalt, loess; Tanksel—residuum, colluvium, and slope alluvium derived from basalt, loess mixed with volcanic ash in the upper part; Lainand—colluvium, loess mixed with volcanic ash in the upper part

*Slope range:* 45 to 60 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### Typical Profile

#### Camaspatch

- 0 to 2 inches—grayish brown very cobbly loam (surface layer)
- 2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)
- 12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)
- 19 inches—basalt

#### Tanksel

- 0 to 4 inches—very dark grayish brown stony silt loam (upper part of surface layer)

- 4 to 11 inches—very dark grayish brown silt loam  
(lower part of surface layer)  
11 to 23 inches—brown very gravelly clay loam (upper  
part of subsoil)  
23 to 30 inches—yellowish brown extremely gravelly  
clay (lower part of subsoil)  
30 inches—basalt

#### **Lainand**

- 0 to 4 inches—brown gravelly loam (upper part of  
surface layer)  
4 to 22 inches—brown very gravelly loam (lower part  
of surface layer)  
22 to 30 inches—yellowish brown extremely gravelly  
clay loam (upper part of subsoil)  
30 to 43 inches—dark brown extremely cobbly loam  
(lower part of subsoil)  
43 inches—bedrock

#### **Soil Properties and Qualities**

*Depth class:* Camaspatch—shallow; Tanksel—  
moderately deep; Lainand—deep

*Drainage class:* Well drained

*Permeability:* Camaspatch and Tanksel—slow;  
Lainand—moderately slow

*Available water capacity:* Camaspatch—very low;  
Tanksel and Lainand—moderate

*Restriction to rooting depth:* Camaspatch—basalt at a  
depth of 15 to 20 inches; Tanksel—basalt at a  
depth of 20 to 40 inches; Lainand—basalt at a  
depth of 40 to 60 inches

#### **Contrasting Inclusions**

- Rock outcrop
- Argabak soils
- Rubble land

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Camaspatch)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in  
surface layer, slope

*Pipelines:* Severe—depth to bedrock, rock fragments  
in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, slope, droughty  
surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface  
layer, slope

##### **(Tanksel)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface  
layer

*Pipelines:* Severe—slope, rock fragments in surface  
layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface  
layer

*Brush control:* Severe—rock fragments in surface  
layer, slope

##### **(Lainand)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

### **42—Camaspatch-Whiskeydick complex, 3 to 15 percent slopes**

#### **Composition**

*Camaspatch and similar soils*—45 percent

*Whiskeydick and similar soils*—35 percent

*Contrasting inclusions*—20 percent

#### **Setting**

*Position on landscape:* Camaspatch—slightly convex  
areas on ridgetops and benches; Whiskeydick—  
slightly concave areas and small mounds on  
ridgetops and benches

*Parent material:* Residuum and colluvium derived from  
basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

#### **Typical Profile**

##### **Camaspatch**

0 to 2 inches—grayish brown very cobbly loam  
(surface layer)

2 to 12 inches—brown very gravelly clay loam (upper  
part of subsoil)

12 to 19 inches—brown extremely gravelly clay (lower  
part of subsoil)

19 inches—basalt

**Whiskeydick**

0 to 4 inches—grayish brown very cobbly loam (surface layer)  
 4 to 11 inches—brown very gravelly clay loam (upper part of subsoil)  
 11 to 22 inches—brown very gravelly clay (middle part of subsoil)  
 22 to 33 inches—brown extremely gravelly clay (lower part of subsoil)  
 33 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Camaspatch—shallow; Whiskeydick—moderately deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Camaspatch—very low; Whiskeydick—low  
*Restriction to rooting depth:* Camaspatch—basalt at a depth of 12 to 20 inches; Whiskeydick—basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Tronsen soils
- Argabak soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development Limitations****(Camaspatch)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

**(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—stones on surface, rock fragments in surface layer

**43—Camaspatch-Whiskeydick complex, 15 to 30 percent slopes****Composition**

*Camaspatch and similar soils:*—45 percent  
*Whiskeydick and similar soils:*—35 percent  
*Contrasting inclusions:*—20 percent

**Setting**

*Position on landscape:* Camaspatch—convex areas on south-facing ridgetops and hillslopes; Whiskeydick—slightly concave areas on south-facing hillslopes and ridgetops  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 2,900 to 4,200 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

**Typical Profile****Camaspatch**

0 to 2 inches—grayish brown very cobbly loam (surface layer)  
 2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)  
 12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)  
 19 inches—basalt

**Whiskeydick**

0 to 4 inches—grayish brown very cobbly loam (surface layer)  
 4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)  
 10 to 21 inches—brown very cobbly clay (middle part of subsoil)  
 21 to 30 inches—dark yellowish brown extremely cobbly clay (lower part of subsoil)  
 30 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Camaspatch—shallow; Whiskeydick—moderately deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Camaspatch—very low; Whiskeydick—low  
*Restriction to rooting depth:* Camaspatch—basalt at a

depth of 15 to 20 inches; Whiskeydick—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Tronsen soils
- Rock outcrop
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Camaspatch)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

##### **(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## **44—Camaspatch-Whiskeydick complex, 30 to 45 percent slopes**

### **Composition**

*Camaspatch and similar soils*—45 percent

*Whiskeydick and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Camaspatch—concave areas on south-facing hillslopes; Whiskeydick—hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 30 to 45 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Camaspatch**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)

12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)

19 inches—basalt

#### **Whiskeydick**

0 to 4 inches—grayish brown very cobbly loam (surface layer)

4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)

10 to 21 inches—brown very cobbly clay (middle part of subsoil)

21 to 30 inches—dark yellowish brown extremely cobbly clay (lower part of subsoil)

30 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Camaspatch—shallow; Whiskeydick—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Camaspatch—very low; Whiskeydick—low

*Restriction to rooting depth:* Camaspatch—basalt at a depth of 12 to 20 inches; Whiskeydick—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Tronsen soils
- Rock outcrop
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Camaspatch)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, slope, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer, slope

### **(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, stones on surface, rock fragments in surface layer

## **45—Camaspatch-Whiskeydick complex, 45 to 60 percent slopes**

### **Composition**

*Camaspatch and similar soils*—45 percent

*Whiskeydick and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Camaspatch—convex areas on south-facing hillslopes; Whiskeydick—concave areas on south-facing hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 45 to 60 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Camaspatch**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)

12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)

19 inches—basalt

#### **Whiskeydick**

0 to 4 inches—grayish brown very cobbly loam (surface layer)

4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)

10 to 21 inches—brown very cobbly clay (middle part of subsoil)

21 to 30 inches—dark yellowish brown extremely cobbly clay (lower part of subsoil)

30 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Camaspatch—shallow; Whiskeydick—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Camaspatch—very low; Whiskeydick—low

*Restriction to rooting depth:* Camaspatch—basalt at a depth of 12 to 20 inches; Whiskeydick—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Tronsen soils
- Rock outcrop
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development Limitations**

#### **(Camaspatch)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, slope, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer, slope

#### **(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, stones on surface, rock fragments in surface layer

## 46—Clerf very cobbly loam, 15 to 30 percent slopes

### **Composition**

*Clerf and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Hillslopes, ridgetops  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)  
3 to 6 inches—grayish brown very gravelly loam (lower part of surface layer)  
6 to 12 inches—brown very gravelly clay (upper part of subsoil)  
12 to 24 inches—brown extremely cobbly clay (lower part of subsoil)  
24 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Moderately deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Vantage and Horseflat soils
- Tronsen and Caliralls soils
- Rock outcrop
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock, slope  
*Seeding:* Severe—droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## 47—Clerf very cobbly loam, 30 to 45 percent slopes

### **Composition**

*Clerf and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Hillslopes, ridgetops  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 30 to 45 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)  
3 to 6 inches—grayish brown very gravelly loam (lower part of surface layer)  
6 to 12 inches—brown very gravelly clay (upper part of subsoil)  
12 to 24 inches—brown extremely cobbly clay (lower part of subsoil)  
24 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Moderately deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Vantage and Horseflat soils
- Tronsen and Caliralls soils
- Rock outcrop
- Argabak soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—slope, rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—slope, rock fragments in surface layer  
*Brush control:* Severe—slope, rock fragments in surface layer

## **48—Colockum silt loam, 5 to 10 percent slopes**

### **Composition**

*Colockum and similar soils*—80 percent  
*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Hillslopes  
*Parent material:* Loess over material derived from basalt  
*Slope range:* 5 to 10 percent  
*Elevation:* 2,900 to 4,200 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 4 inches—dark grayish brown silt loam (surface layer)  
 4 to 20 inches—brown and yellowish brown silt loam (upper part of subsoil)  
 20 to 33 inches—light yellowish brown silt loam (next part of subsoil)  
 33 to 43 inches—yellowish brown, calcareous cobbly silty clay loam (next part of subsoil)  
 43 to 60 inches—yellowish brown, calcareous silty clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Very high  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Argabak soils
- Camaspatch soils
- Blint and Whiskeydick soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Slight  
*Seeding:* Slight  
*Brush control:* Slight

## **49—Colockum silt loam, 10 to 15 percent slopes**

### **Composition**

*Colockum and similar soils*—80 percent  
*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Hillslopes  
*Parent material:* Loess over material derived from basalt  
*Slope range:* 10 to 15 percent  
*Elevation:* 2,900 to 4,200 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 4 inches—dark grayish brown silt loam (surface layer)  
 4 to 20 inches—brown and yellowish brown silt loam (upper part of subsoil)  
 20 to 33 inches—light yellowish brown silt loam (next part of subsoil)  
 33 to 43 inches—yellowish brown, calcareous cobbly silty clay loam (next part of subsoil)  
 43 to 60 inches—yellowish brown, calcareous silty clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Very high  
*Potential rooting depth:* More than 60 inches

### ***Contrasting Inclusions***

- Argabak soils
- Camaspatch soils
- Blint and Whiskeydick soils

### ***Major Uses***

Military training, livestock grazing, wildlife habitat

### ***Livestock Grazing***

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—slope

*Seeding:* Slight

*Brush control:* Slight

## **50—Colockum silt loam, 15 to 30 percent slopes**

### ***Composition***

*Colockum and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### ***Setting***

*Position on landscape:* South-facing hillslopes

*Parent material:* Loess over material derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### ***Typical Profile***

0 to 4 inches—dark grayish brown silt loam (surface layer)

4 to 20 inches—brown and yellowish brown silt loam (upper part of subsoil)

20 to 33 inches—light yellowish brown silt loam (next part of subsoil)

33 to 43 inches—yellowish brown, calcareous cobbly silty clay loam (next part of subsoil)

43 to 60 inches—yellowish brown, calcareous silty clay loam (lower part of subsoil)

### ***Soil Properties and Qualities***

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### ***Contrasting Inclusions***

- Argabak soils
- Camaspatch soils
- Blint and Whiskeydick soils

### ***Major Uses***

Military training, livestock grazing, wildlife habitat

### ***Livestock Grazing***

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

## **51—Colockum-Tronsen complex, 3 to 15 percent slopes**

### ***Composition***

*Colockum and similar soils—*45 percent

*Tronsen and similar soils—*35 percent

*Contrasting inclusions—*20 percent

### ***Setting***

*Position on landscape:* Colockum—concave areas on hillslopes; Tronsen—convex areas on hillslopes

*Parent material:* Colockum—loess over material derived from basalt; Tronsen—residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### ***Typical Profile***

#### **Colockum**

0 to 4 inches—dark grayish brown silt loam (surface layer)

4 to 20 inches—brown and yellowish brown silt loam (upper part of subsoil)

20 to 33 inches—light yellowish brown silt loam (next part of subsoil)

33 to 43 inches—yellowish brown, calcareous cobbly silty clay loam (next part of subsoil)

43 to 60 inches—yellowish brown, calcareous silty clay loam (lower part of subsoil)

### **Tronsen**

0 to 3 inches—dark grayish brown stony loam (surface layer)

3 to 18 inches—brown very gravelly clay (upper part of subsoil)

18 to 25 inches—yellowish brown very gravelly clay (middle part of subsoil)

25 to 60 inches—light yellowish brown extremely gravelly clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Colockum—moderately slow;  
Tronsen—slow

*Available water capacity:* Colockum—very high;  
Tronsen—high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Argabak soils
- Camaspatch soils
- Blint and Whiskeydick soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Colockum)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—slope

*Seeding:* Slight

*Brush control:* Slight

#### **(Tronsen)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer

*Pipelines:* Moderate—rock fragments in surface layer

*Livestock ponds:* Moderate—slope

*Seeding:* Moderate—stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Moderate—rock fragments in surface layer

## **52—Disage very cobbly loam, 3 to 15 percent slopes**

### **Composition**

*Disage and similar soils:*—80 percent

*Contrasting inclusions:*—20 percent

### **Setting**

*Position on landscape:* Ridgetops, hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

0 to 4 inches—brown very cobbly loam (surface layer)

4 to 9 inches—brown very gravelly clay loam (upper part of subsoil)

9 to 14 inches—yellowish brown very gravelly clay loam (middle part of subsoil)

14 to 18 inches—yellowish brown extremely cobbly clay loam (lower part of subsoil)

18 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Nevo soils
- Drino soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### **53—Disage very cobbly loam, 15 to 30 percent slopes**

#### **Composition**

*Disage and similar soils*—75 percent

*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* South-facing ridgetops and hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

0 to 4 inches—brown very cobbly loam (surface layer)

4 to 9 inches—brown very gravelly clay loam (upper part of subsoil)

9 to 14 inches—yellowish brown very gravelly clay loam (middle part of subsoil)

14 to 18 inches—yellowish brown extremely cobbly clay loam (lower part of subsoil)

18 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 14 to 20 inches

#### **Contrasting Inclusions**

- Nevo soils
- Drino soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### **54—Disage very stony loam, 30 to 45 percent slopes**

#### **Composition**

*Disage and similar soils*—75 percent

*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* South-facing hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 30 to 45 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

0 to 4 inches—brown very stony loam (surface layer)

4 to 9 inches—brown very gravelly clay loam (upper part of subsoil)

9 to 14 inches—yellowish brown very gravelly clay loam (middle part of subsoil)

14 to 18 inches—yellowish brown extremely cobbly clay loam (lower part of subsoil)

18 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 14 to 20 inches

#### **Contrasting Inclusions**

- Nevo soils
- Drino soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer, slope

*Brush control:* Severe—slope, stones on surface, rock fragments in surface layer

### **55—Disage-Clenage complex, 15 to 30 percent slopes**

#### **Composition**

*Disage and similar soils*—45 percent

*Clenage and similar soils*—35 percent

*Contrasting inclusions*—20 percent

#### **Setting**

*Position on landscape:* Ridgetops, hillslopes

*Parent material:* Disage—residuum and colluvium derived from basalt, loess; Clenage—residuum and colluvium derived from basalt, interbedded sediment with additions of loess

*Slope range:* 15 to 30 percent

*Elevation:* 600 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

##### **Disage**

0 to 4 inches—brown very cobbly loam (surface layer)

4 to 8 inches—brown very gravelly clay loam (upper part of subsoil)

8 to 13 inches—yellowish brown very gravelly clay loam (middle part of subsoil)

13 to 17 inches—yellowish brown extremely cobbly clay (lower part of subsoil)

17 inches—basalt

##### **Clenage**

0 to 3 inches—brown very gravelly loam (surface layer)

3 to 8 inches—brown gravelly clay loam (upper part of subsoil)

8 to 16 inches—brown very gravelly clay loam (next part of subsoil)

16 to 20 inches—brown very gravelly clay (next part of subsoil)

20 to 25 inches—brown extremely gravelly clay (lower part of subsoil)

25 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Disage—shallow; Clenage—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Disage—very low; Clenage—low

*Restriction to rooting depth:* Disage—basalt at a depth of 14 to 20 inches; Clenage—basalt at a depth of 20 to 40 inches

#### **Contrasting Inclusions**

- Kiona soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Disage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

##### **(Clenage)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—depth to bedrock, rock fragments in surface layer

*Pipelines:* Moderate—rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—droughty surface layer

*Brush control:* Moderate—slope

## 56—Drino cobbly loam, 15 to 30 percent slopes

### Composition

*Drino and similar soils*—75 percent

*Contrasting inclusions*—25 percent

### Setting

*Position on landscape*: North-facing hillslopes

*Parent material*: Colluvium derived from basalt, loess

*Slope range*: 15 to 30 percent

*Elevation*: 500 to 2,000 feet

*Average annual precipitation*: 6 to 9 inches

*Average annual air temperature*: 49 to 51 degrees F

*Frost-free season (32 degrees F)*: 135 to 195 days

### Typical Profile

0 to 3 inches—yellowish brown cobbly loam (surface layer)

3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)

7 to 19 inches—yellowish brown very gravelly loam (next part of subsoil)

19 to 25 inches—yellowish brown, calcareous very gravelly loam (next part of subsoil)

25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)

32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)

38 inches—basalt

### Soil Properties and Qualities

*Depth class*: Moderately deep

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: Low

*Restriction to rooting depth*: Basalt at a depth of 20 to 40 inches

### Contrasting Inclusions

- Nevo soils
- Fortyday soils
- Kiona and Sohappay soils
- Rock outcrop
- Esquatzel and Weirman soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

### Development limitations

*Corrosivity (uncoated steel)*: Moderate

*Corrosivity (concrete)*: Low

*Fences*: Severe—rock fragments in surface layer

*Pipelines*: Severe—rock fragments in surface layer

*Livestock ponds*: Severe—slope, depth to bedrock

*Seeding*: Severe—rock fragments in surface layer, stones on surface

*Brush control*: Severe—rock fragments in surface layer

## 57—Drino very stony loam, 15 to 30 percent slopes

### Composition

*Drino and similar soils*—75 percent

*Contrasting inclusions*—25 percent

### Setting

*Position on landscape*: South-facing hillslopes

*Parent material*: Colluvium derived from basalt, loess

*Slope range*: 15 to 30 percent

*Elevation*: 500 to 2,000 feet

*Average annual precipitation*: 6 to 9 inches

*Average annual air temperature*: 49 to 51 degrees F

*Frost-free season (32 degrees F)*: 135 to 195 days

### Typical Profile

0 to 3 inches—yellowish brown very stony loam (surface layer)

3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)

7 to 25 inches—yellowish brown very gravelly loam (next part of subsoil)

25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)

32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)

38 inches—basalt

### Soil Properties and Qualities

*Depth class*: Moderately deep

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: Low

*Restriction to rooting depth*: Basalt at a depth of 20 to 40 inches

### Contrasting Inclusions

- Nevo soils
- Fortyday soils
- Kiona and Sohappay soils
- Rock outcrop
- Esquatzel and Weirman soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—rock fragments in surface layer, stones on surface

*Brush control:* Severe—rock fragments in surface layer

### **58—Drino-Disage-Kiona complex, 30 to 45 percent slopes**

#### **Composition**

*Drino and similar soils*—35 percent

*Disage and similar soils*—30 percent

*Kiona and similar soils*—25 percent

*Contrasting inclusions*—10 percent

#### **Setting**

*Position on landscape:* Drino—slightly convex and slightly concave areas on north-facing hillslopes; Disage—strongly convex areas on north-facing hillslopes; Kiona—concave areas and footslopes on north-facing hillslopes

*Parent material:* Drino and Kiona—colluvium derived from basalt, loess; Disage—residuum and colluvium derived from basalt, loess

*Slope range:* 30 to 45 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

##### **Drino**

0 to 3 inches—yellowish brown very cobbly loam (surface layer)

3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)

7 to 19 inches—yellowish brown very gravelly loam (next part of subsoil)

19 to 25 inches—yellowish brown, calcareous very gravelly loam (next part of subsoil)

25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)

32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)

38 inches—basalt

##### **Disage**

0 to 4 inches—brown very cobbly loam (surface layer)

4 to 9 inches—brown very gravelly clay loam (upper part of subsoil)

9 to 14 inches—yellowish brown very gravelly clay loam (middle part of subsoil)

14 to 18 inches—yellowish brown extremely cobbly clay loam (lower part of subsoil)

18 inches—basalt

##### **Kiona**

0 to 4 inches—brown very cobbly loam (surface layer)

4 to 21 inches—yellowish brown very gravelly loam (upper part of subsoil)

21 to 48 inches—pale brown, calcareous extremely gravelly loam (middle part of subsoil)

48 to 60 inches—light yellowish brown, calcareous extremely gravelly loam (lower part of subsoil)

#### **Soil Properties and Qualities**

*Depth class:* Drino—moderately deep;

Disage—shallow; Kiona—very deep

*Drainage class:* Well drained

*Permeability:* Drino and Kiona—moderate;

Disage—slow

*Available water capacity:* Drino—low;

Disage—very low; Kiona—moderate

*Restriction to rooting depth:* Drino—basalt at a depth of 20 to 40 inches; Disage—basalt at a depth of 14 to 20 inches

*Potential rooting depth:* Kiona—more than 60 inches

#### **Contrasting Inclusions**

- Nevo soils
- Rock outcrop
- Fortyday soils
- Rubble land

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Drino)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer, stones on surface

*Brush control:* Severe—slope, rock fragments in surface layer

#### **(Disage)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

#### **(Kiona)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer, slope

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

### **59—Drino-Rubble land-Rock outcrop complex, 30 to 75 percent slopes**

#### **Composition**

*Drino and similar soils*—35 percent

*Rubble land*—30 percent

*Rock outcrop*—25 percent

*Contrasting inclusions*—10 percent

#### **Setting**

*Position on landscape:* South-facing hillslopes

*Parent material:* Drino—colluvium derived from basalt, loess; Rubble land and Rock outcrop—basalt

*Slope range:* 30 to 75 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Drino**

#### **Typical profile**

0 to 3 inches—yellowish brown very stony loam (surface layer)

3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)

7 to 19 inches—yellowish brown very gravelly loam (next part of subsoil)

19 to 25 inches—yellowish brown, calcareous very gravelly loam (next part of subsoil)

25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)

32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)

38 inches—basalt

#### **Soil properties and qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

#### **Rubble Land**

Areas of stones and boulders

#### **Rock Outcrop**

Exposures of barren basalt

#### **Contrasting Inclusions**

- Nevo soils
- Fortyday soils
- Kiona soils
- Esquatzel and Weirman soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Drino)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, stones on surface, rock fragments in surface layer

*Brush control:* Severe—slope, stones on surface, rock fragments in surface layer

## **60—Drino-Rubble land-Rock outcrop complex, 30 to 75 percent north slopes**

### **Composition**

*Drino and similar soils*—35 percent

*Rubble land*—30 percent

*Rock outcrop*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* North-facing hillslopes

*Parent material:* Drino—colluvium derived from basalt, loess; Rubble land and Rock outcrop—basalt

*Slope range:* 30 to 75 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Drino**

#### **Typical profile**

0 to 3 inches—yellowish brown very stony loam (surface layer)

3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)

7 to 19 inches—yellowish brown very gravelly loam (next part of subsoil)

19 to 25 inches—yellowish brown, calcareous very gravelly loam (next part of subsoil)

25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)

32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)

38 inches—basalt

#### **Soil properties and qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

### **Rubble Land**

Areas of stones and boulders

### **Rock Outcrop**

Exposures of barren basalt

### **Contrasting Inclusions**

- Nevo soils
- Fortyday soils
- Kiona soils
- Esquatzel and Weirman soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Drino)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, stones on surface, rock fragments in surface layer

*Brush control:* Severe—slope, stones on surface, rock fragments in surface layer

## **61—Drino-Sohappy-Fortyday complex, 30 to 45 percent slopes**

### **Composition**

*Drino and similar soils*—35 percent

*Sohappy and similar soils*—30 percent

*Fortyday and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Drino—slightly convex and slightly concave areas on north-facing hillslopes; Sohappy—concave areas and footslopes on north-facing hillslopes; Fortyday—strongly convex areas on north-facing hillslopes

*Parent material:* Drino—colluvium derived from basalt, loess; Sohappy—loess over colluvium and alluvium; Fortyday—residuum and colluvium derived from basalt with small additions of loess

*Slope range:* 30 to 45 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### Typical Profile

#### Drino

- 0 to 3 inches—yellowish brown cobbly loam (surface layer)
- 3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)
- 7 to 19 inches—yellowish brown very gravelly loam (next part of subsoil)
- 19 to 25 inches—yellowish brown, calcareous very gravelly loam (next part of subsoil)
- 25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)
- 32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)
- 38 inches—basalt

#### Sohappy

- 0 to 4 inches—yellowish brown silt loam (surface layer)
- 4 to 17 inches—pale brown silt loam (upper part of subsoil)
- 17 to 25 inches—light yellowish brown, calcareous gravelly silt loam (next part of subsoil)
- 25 to 41 inches—light brownish gray, calcareous cobbly loam (next part of subsoil)
- 41 to 47 inches—light brownish gray, calcareous extremely cobbly clay loam (lower part of subsoil)
- 47 inches—basalt

#### Fortyday

- 0 to 4 inches—yellowish brown cobbly loam (upper part of surface layer)
- 4 to 9 inches—yellowish brown very gravelly loam (lower part of surface layer)
- 9 to 13 inches—yellowish brown very gravelly loam (upper part of subsoil)
- 13 to 17 inches—yellowish brown extremely gravelly clay loam (lower part of subsoil)
- 17 inches—basalt

### Soil Properties and Qualities

*Depth class:* Drino—moderately deep; Sohappy—deep; Fortyday—shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Drino—low; Sohappy—very high; Fortyday—very low

*Restriction to rooting depth:* Drino—basalt at a depth of 20 to 40 inches; Sohappy—basalt at a depth of 40 to 60 inches; Fortyday—basalt at a depth of 10 to 20 inches

### Contrasting Inclusions

- Nevo soils
- Esquatzel and Weirman soils
- Rock outcrop

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Drino)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

##### (Sohappy)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

##### (Fortyday)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer, slope

*Brush control:* Severe—slope, rock fragments in surface layer

### 62—Drino-Sohappy-Fortyday complex, 45 to 60 percent slopes

#### Composition

*Drino and similar soils*—35 percent

*Sohappy and similar soils*—30 percent

*Fortyday and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Drino—slightly convex and slightly concave areas on north-facing hillslopes; Sohappy—strongly concave areas on north-facing hillslopes; Fortyday—strongly convex areas on north-facing hillslopes

*Parent material:* Drino—colluvium derived from basalt, loess; Sohappy—loess over colluvium and alluvium; Fortyday—residuum and colluvium derived from basalt with small additions of loess

*Slope range:* 45 to 60 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

#### **Drino**

0 to 3 inches—yellowish brown cobbly loam (surface layer)

3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)

7 to 19 inches—yellowish brown very gravelly loam (next part of subsoil)

19 to 25 inches—yellowish brown, calcareous very gravelly loam (next part of subsoil)

25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)

32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)

38 inches—basalt

#### **Sohappy**

0 to 4 inches—yellowish brown silt loam (surface layer)

4 to 17 inches—pale brown silt loam (upper part of subsoil)

17 to 25 inches—light yellowish brown, calcareous gravelly silt loam (next part of subsoil)

25 to 41 inches—light brownish gray, calcareous cobbly loam (next part of subsoil)

41 to 47 inches—light brownish gray, calcareous extremely cobbly clay loam (lower part of subsoil)

47 inches—basalt

#### **Fortyday**

0 to 4 inches—yellowish brown cobbly loam (upper part of surface layer)

4 to 9 inches—yellowish brown very gravelly loam (lower part of surface layer)

9 to 13 inches—yellowish brown very gravelly loam (upper part of subsoil)

13 to 17 inches—yellowish brown extremely cobbly loam (lower part of subsoil)

17 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Drino—moderately deep; Sohappy—deep; Fortyday—shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Drino—low; Sohappy—very high; Fortyday—very low

*Restriction to rooting depth:* Drino—basalt at a depth of 20 to 40 inches; Sohappy—basalt at a depth of 40 to 60 inches; Fortyday—basalt at a depth of 10 to 20 inches

### **Contrasting Inclusions**

- Nevo soils
- Rock outcrop
- Esquatzel and Weirman soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Drino)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

##### **(Sohappy)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

**(Fortyday)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, slope, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, slope, rock fragments

*Livestock ponds:* Severe—slope, rock fragments in surface layer, depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer, slope

*Brush control:* Severe—slope

**63—Drysel loam, 2 to 5 percent slopes****Composition**

*Drysel and similar soils—*75 percent

*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 2 to 5 percent

*Elevation:* 1,000 to 1,800 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

**Typical Profile**

0 to 11 inches—pale brown loam (surface layer)

11 to 27 inches—pale brown silt loam (upper part of subsoil)

27 to 31 inches—dark brown, calcareous loam (lower part of subsoil)

31 to 41 inches—indurated, lime- and silica-cemented hardpan

41 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

**Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan

*Drainage class:* Well drained

*Permeability:* Moderately slow above the hardpan

*Available water capacity:* High

*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Scoon and Wanapum soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Slight

*Brush control:* Slight

**64—Drysel loam, 5 to 10 percent slopes****Composition**

*Drysel and similar soils—*75 percent

*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 5 to 10 percent

*Elevation:* 1,000 to 1,800 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

**Typical Profile**

0 to 11 inches—pale brown loam (surface layer)

11 to 27 inches—pale brown silt loam (upper part of subsoil)

27 to 31 inches—dark brown, calcareous loam (lower part of subsoil)

31 to 41 inches—indurated, lime- and silica-cemented hardpan

41 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

**Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan

*Drainage class:* Well drained

*Permeability:* Moderately slow above the hardpan

*Available water capacity:* High

*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Scoon and Wanapum soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Slight  
*Brush control:* Slight

### **65—Durtash loam, 5 to 10 percent slopes**

#### **Composition**

*Durtash and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

#### **Setting**

*Position on landscape:* Alluvial fans  
*Parent material:* Loess, alluvium  
*Slope range:* 5 to 10 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

0 to 4 inches—grayish brown loam (upper part of surface layer)  
 4 to 7 inches—brown loam (lower part of surface layer)  
 7 to 10 inches—brown very gravelly clay loam (upper part of subsoil)  
 10 to 14 inches—yellowish brown very gravelly clay loam (middle part of subsoil)  
 14 to 19 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 19 to 29 inches—indurated, lime- and silica-cemented hardpan  
 29 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Soil Properties and Qualities**

*Depth class:* Shallow to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Slow above the hardpan  
*Available water capacity:* Low  
*Restriction to rooting depth:* Hardpan at a depth of 10 to 20 inches

#### **Contrasting Inclusions**

- Argabak soils
- Manastash and Selah soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock  
*Pipelines:* Severe—depth to bedrock  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer  
*Brush control:* Slight

### **66—Esquatzel silt loam, 0 to 2 percent slopes**

#### **Composition**

*Esquatzel and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

#### **Setting**

*Position on landscape:* Bottom land  
*Parent material:* Alluvium  
*Slope range:* 0 to 2 percent  
*Elevation:* 500 to 2,900 feet  
*Average annual precipitation:* 6 to 12 inches  
*Average annual air temperature:* 48 to 53 degrees F  
*Frost-free season (32 degrees F):* 130 to 180 days

#### **Typical Profile**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 31 inches—yellowish brown silt loam (subsoil)  
 31 to 40 inches—light yellowish brown, calcareous silt loam (upper part of substratum)  
 40 to 60 inches—pale brown, calcareous silt loam (lower part of substratum)

#### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Very high  
*Potential rooting depth:* More than 60 inches  
*Frequency of flooding:* Occasional in January through May

#### **Contrasting Inclusions**

- Weirman soils
- Haploxerolls

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—see page

*Seeding:* Slight

*Brush control:* Slight

**67—Esquatzel silt loam, 2 to 5 percent slopes****Composition**

*Esquatzel and similar soils—*75 percent

*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Bottom land

*Parent material:* Alluvium

*Slope range:* 2 to 5 percent

*Elevation:* 500 to 2,900 feet

*Average annual precipitation:* 6 to 12 inches

*Average annual air temperature:* 48 to 53 degrees F

*Frost-free season (32 degrees F):* 130 to 180 days

**Typical Profile**

0 to 10 inches—brown silt loam (surface layer)

10 to 31 inches—yellowish brown silt loam (subsoil)

31 to 40 inches—light yellowish brown, calcareous silt loam (upper part of substratum)

40 to 60 inches—pale brown, calcareous silt loam (lower part of substratum)

**Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

**Contrasting Inclusions**

- Weirman soils
- Haploxerolls

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—see page

*Seeding:* Slight

*Brush control:* Slight

**68—Esquatzel-Aquolls-Weirman complex, channeled, 0 to 5 percent slopes****Composition**

*Esquatzel and similar soils—*40 percent

*Aquolls and similar soils—*25 percent

*Weirman and similar soils—*25 percent

*Contrasting inclusions—*10 percent

**Setting**

*Position on landscape:* Esquatzel—higher terraces, bottom land; Aquolls—channels on flood plains; Weirman—lower terraces, channels on flood plains

*Parent material:* Alluvium

*Slope range:* 0 to 5 percent

*Elevation:* 500 to 2,500 feet

*Average annual precipitation:* 6 to 12 inches

*Average annual air temperature:* 48 to 53 degrees F

*Frost-free season (32 degrees F):* 130 to 195 days

**Typical Profile****Esquatzel**

0 to 10 inches—brown silt loam (surface layer)

10 to 33 inches—yellowish brown silt loam (subsoil)

33 to 44 inches—light yellowish brown, calcareous silt loam (upper part of substratum)

44 to 60 inches—pale brown, calcareous, stratified silt loam to fine sandy loam (lower part of substratum)

**Representative Profile****Aquolls**

0 to 6 inches—dark grayish brown cobbly fine sandy loam (surface layer)

6 to 10 inches—dark grayish brown gravelly sandy loam (upper part of subsoil)

10 to 20 inches—grayish brown extremely gravelly sandy loam (middle part of subsoil)

20 to 60 inches—grayish brown extremely gravelly loamy sand (lower part of subsoil)

### Typical Profile

#### Weirman

0 to 12 inches—grayish brown very cobbly sandy loam (upper part of surface layer)  
 12 to 18 inches—brown very gravelly loamy sand (lower part of surface layer)  
 18 to 60 inches—brown extremely gravelly sand (substratum)

#### Soil Properties and Qualities

*Depth class:* Esquatzel and Weirman—very deep; Aquolls—very deep to moderately deep  
*Drainage class:* Esquatzel—well drained; Aquolls—poorly drained or somewhat poorly drained; Weirman—somewhat excessively drained  
*Permeability:* Esquatzel—moderate; Aquolls—moderate over very rapid; Weirman—rapid over very rapid  
*Available water capacity:* Esquatzel—very high; Aquolls—low; Weirman—very low  
*Potential rooting depth:* Esquatzel and Weirman—more than 60 inches; Aquolls—more than 20 inches  
*Frequency of flooding:* Aquolls—frequent in January through May; Weirman—occasional in January through May  
*Depth to water table:* Aquolls—at the surface to a depth of 18 inches

#### Contrasting Inclusions

- Haploxerolls

#### Major Uses

Military training, livestock grazing, wildlife habitat

#### Livestock Grazing

#### Development limitations

##### (Esquatzel)

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Moderate—seepage  
*Seeding:* Slight  
*Brush control:* Slight

##### (Aquolls)

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—seepage  
*Seeding:* Severe—stones on surface, rock fragments in surface layer, wetness  
*Brush control:* Severe—rock fragments in surface layer

##### (Weirman)

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—rock fragments in surface layer  
*Livestock ponds:* Severe—seepage  
*Seeding:* Severe—stones on surface, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—stones on surface, rock fragments in surface layer

### 69—Esquatzel-Weirman complex, channeled, 0 to 2 percent slopes

#### Composition

*Esquatzel and similar soils*—40 percent  
*Weirman fine sandy loam and similar soils*—25 percent  
*Weirman very cobbly sandy loam and similar soils*—25 percent  
*Contrasting inclusions*—10 percent

#### Setting

*Position on landscape:* Esquatzel—higher terraces, bottom land; Weirman fine sandy loam—intermediate terraces on flood plains; Weirman very cobbly sandy loam—lower terraces, channels on flood plains  
*Parent material:* Alluvium  
*Slope range:* 0 to 2 percent  
*Elevation:* 500 to 2,500 feet  
*Average annual precipitation:* 6 to 12 inches  
*Average annual air temperature:* 48 to 53 degrees F  
*Frost-free season (32 degrees F):* 130 to 195 days

#### Typical Profile

##### Esquatzel

0 to 10 inches—brown silt loam (surface layer)  
 10 to 31 inches—yellowish brown silt loam (subsoil)  
 31 to 40 inches—light yellowish brown, calcareous silt loam (upper part of substratum)  
 40 to 60 inches—pale brown, calcareous silt loam (lower part of substratum)

##### Weirman fine sandy loam

0 to 15 inches—grayish brown fine sandy loam (upper part of surface layer)

- 15 to 18 inches—brown fine sandy loam (lower part of surface layer)
- 18 to 27 inches—brown gravelly loamy sand (upper part of substratum)
- 27 to 38 inches—brown very gravelly loamy sand (middle part of substratum)
- 38 to 60 inches—brown extremely gravelly sand (lower part of substratum)

#### **Weirman very cobbly sandy loam**

- 0 to 10 inches—grayish brown very cobbly sandy loam (upper part of surface layer)
- 10 to 18 inches—brown very gravelly loamy sand (lower part of surface layer)
- 18 to 60 inches—brown extremely gravelly sand (substratum)

#### **Soil Properties and Qualities**

- Depth class:* Very deep
- Drainage class:* Esquatzel—well drained; Weirman—somewhat excessively drained
- Permeability:* Esquatzel—moderate; Weirman—rapid over very rapid
- Available water capacity:* Esquatzel—very high; Weirman—very low
- Potential rooting depth:* More than 60 inches
- Frequency of flooding:* Weirman—occasional in January through May

#### **Contrasting Inclusions**

- Haploxerolls

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Esquatzel)**

- Corrosivity (uncoated steel):* High
- Corrosivity (concrete):* Low
- Fences:* Slight
- Pipelines:* Slight
- Livestock ponds:* Moderate—seepage
- Seeding:* Slight
- Brush control:* Slight

##### **(Weirman)**

- Corrosivity (uncoated steel):* Moderate
- Corrosivity (concrete):* Low
- Fences:* Severe—rock fragments in surface layer
- Pipelines:* Severe—rock fragments in surface layer
- Livestock ponds:* Severe—seepage

- Seeding:* Severe—stones on surface, droughty surface layer, rock fragments in surface layer
- Brush control:* Severe—stones on surface, rock fragments in surface layer

### **70—Finley complex, 3 to 15 percent slopes**

#### **Composition**

- Finley sandy loam and similar soils:* 45 percent
- Finley cobbly sandy loam and similar soils:* 35 percent
- Contrasting inclusions:* 20 percent

#### **Setting**

- Position on landscape:* Alluvial fans
- Parent material:* Gravelly alluvium
- Slope range:* 3 to 15 percent
- Elevation:* 600 to 1,300 feet
- Average annual precipitation:* 6 to 9 inches
- Average annual air temperature:* 49 to 51 degrees F
- Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

##### **Finley sandy loam**

- 0 to 4 inches—brown sandy loam (surface layer)
- 4 to 8 inches—brown gravelly loam (upper part of subsoil)
- 8 to 13 inches—brown gravelly loam (next part of subsoil)
- 13 to 22 inches—brown extremely gravelly sandy loam (next part of subsoil)
- 22 to 38 inches—brown, calcareous extremely gravelly sandy loam (lower part of subsoil)
- 38 to 60 inches—brown extremely gravelly loamy sand (substratum)

##### **Finley cobbly sandy loam**

- 0 to 8 inches—grayish brown cobbly sandy loam (surface layer)
- 8 to 12 inches—brown very gravelly sandy loam (upper part of subsoil)
- 12 to 20 inches—brown very gravelly sandy loam (middle part of subsoil)
- 20 to 29 inches—brown, calcareous very gravelly sandy loam (lower part of subsoil)
- 29 to 60 inches—brown extremely gravelly sand (substratum)

#### **Soil Properties and Qualities**

- Depth class:* Very deep
- Drainage class:* Well drained

*Permeability:* Moderate over very rapid  
*Available water capacity:* Low  
*Potential rooting depth:* More than 60 inches  
*Frequency of flooding:* Rare

### **Contrasting Inclusions**

- Haploxerolls
- Malaga soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Moderate—rock fragments in surface layer  
*Livestock ponds:* Severe—seepage  
*Seeding:* Moderate—droughty surface layer, rock fragments in surface layer  
*Brush control:* Moderate—rock fragments in surface layer

## **71—Fortyday-Drino-Nevo complex, 15 to 30 percent slopes**

### **Composition**

*Fortyday and similar soils*—35 percent  
*Drino and similar soils*—30 percent  
*Nevo and similar soils*—25 percent  
*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Fortyday—slightly convex areas on south-facing hillslopes; Drino—concave areas on south-facing hillslopes; Nevo—strongly convex areas on south-facing hillslopes  
*Parent material:* Fortyday—residuum and colluvium derived from basalt with small additions of loess; Drino—colluvium derived from basalt, loess; Nevo—loess, residuum derived from basalt  
*Slope range:* 15 to 30 percent  
*Elevation:* 500 to 2,000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

#### **Fortyday**

0 to 3 inches—yellowish brown very stony loam (upper part of surface layer)  
 3 to 6 inches—yellowish brown very gravelly loam (lower part of surface layer)

6 to 10 inches—yellowish brown very gravelly loam (upper part of subsoil)  
 10 to 15 inches—yellowish brown extremely cobbly loam (lower part of subsoil)  
 15 inches—basalt

#### **Drino**

0 to 3 inches—yellowish brown very stony loam (surface layer)  
 3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)  
 7 to 19 inches—yellowish brown very gravelly loam (next part of subsoil)  
 19 to 25 inches—yellowish brown, calcareous very gravelly loam (next part of subsoil)  
 25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)  
 32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)  
 38 inches—basalt

#### **Nevo**

0 to 2 inches—pale brown extremely gravelly sandy loam (surface layer)  
 2 to 8 inches—brown very gravelly clay loam (subsoil)  
 8 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Fortyday—shallow; Drino—moderately deep; Nevo—very shallow

*Drainage class:* Well drained

*Permeability:* Fortyday and Drino—moderate; Nevo—moderately slow

*Available water capacity:* Fortyday and Nevo—very low; Drino—low

*Restriction to rooting depth:* Fortyday—basalt at a depth of 14 to 20 inches; Drino—basalt at a depth of 20 to 40 inches; Nevo—basalt at a depth of 5 to 10 inches

### **Contrasting Inclusions**

- Kiona soils
- Rock outcrop
- Weirman and Esquatzel soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

#### **(Fortyday)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer

*Brush control:* Moderate—rock fragments in surface layer

### **(Drino)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—slope

*Seeding:* Severe—rock fragments in surface layer, stones on surface

*Brush control:* Severe—rock fragments in surface layer

### **(Nevo)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, stones on surface

*Brush control:* Severe—rock fragments in surface layer, stones on surface

## **72—Fortyday-Drino-Nevo complex, 30 to 45 percent slopes**

### **Composition**

*Fortyday and similar soils*—35 percent

*Drino and similar soils*—30 percent

*Nevo and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Fortyday—slightly convex areas on south-facing hillslopes; Drino—concave areas on south-facing hillslopes; Nevo—strongly convex areas on south-facing hillslopes

*Parent material:* Fortyday—residuum and colluvium derived from basalt with small additions of loess; Drino—colluvium derived from basalt, loess; Nevo—loess, residuum derived from basalt

*Slope range:* 30 to 45 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

#### **Fortyday**

0 to 3 inches—yellowish brown very stony loam (upper part of surface layer)

3 to 6 inches—yellowish brown very gravelly loam (lower part of surface layer)

6 to 10 inches—yellowish brown very gravelly loam (upper part of subsoil)

10 to 15 inches—yellowish brown extremely cobbly loam (lower part of subsoil)

15 inches—basalt

#### **Drino**

0 to 3 inches—yellowish brown very stony loam (surface layer)

3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)

7 to 25 inches—yellowish brown very gravelly loam (next part of subsoil)

25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)

32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)

38 inches—basalt

#### **Nevo**

0 to 2 inches—pale brown extremely gravelly sandy loam (surface layer)

2 to 8 inches—brown very gravelly clay loam (subsoil)

8 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Fortyday—shallow; Drino—moderately deep; Nevo—very shallow

*Drainage class:* Well drained

*Permeability:* Fortyday and Drino—moderate; Nevo—moderately slow

*Available water capacity:* Fortyday and Nevo—very low; Drino—low

*Restriction to rooting depth:* Fortyday—basalt at a depth of 14 to 20 inches; Drino—basalt at a depth of 20 to 40 inches; Nevo—basalt at a depth of 5 to 10 inches

### **Contrasting Inclusions**

- Kiona soils
- Rock outcrop
- Weirman and Esquatzel soils
- Rubble land

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Fortyday)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, slope, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope

*Seeding:* Severe—depth to bedrock, droughty surface layer, slope

*Brush control:* Severe—slope

##### (Drino)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer, slope

*Pipelines:* Severe—rock fragments in surface layer, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—slope, rock fragments in surface layer, stones on surface

*Brush control:* Severe—slope, rock fragments in surface layer

##### (Nevo)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Brush control:* Severe—rock fragments in surface layer

### 73—Fortyday-Drino-Sohappy complex, 30 to 45 percent slopes

#### Composition

*Fortyday and similar soils*—35 percent

*Drino and similar soils*—30 percent

*Sohappy and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### Setting

*Position on landscape:* Fortyday—strongly convex areas on south-facing hillslopes; Drino—slightly convex and slightly concave areas on south-facing hillslopes; Sohappy—strongly concave areas on south-facing hillslopes and footslopes

*Parent material:* Fortyday—residuum and colluvium derived from basalt with small additions of loess; Drino—colluvium derived from basalt, loess; Sohappy—loess over colluvium and alluvium

*Slope range:* 30 to 45 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### Typical Profile

#### Fortyday

0 to 3 inches—yellowish brown very stony loam (upper part of surface layer)

3 to 6 inches—yellowish brown very gravelly loam (lower part of surface layer)

6 to 10 inches—yellowish brown very gravelly loam (upper part of subsoil)

10 to 15 inches—yellowish brown extremely cobbly loam (lower part of subsoil)

15 inches—basalt

#### Drino

0 to 3 inches—yellowish brown very stony loam (surface layer)

3 to 7 inches—yellowish brown very gravelly loam (upper part of subsoil)

7 to 19 inches—yellowish brown very gravelly loam (next part of subsoil)

19 to 25 inches—yellowish brown, calcareous very gravelly loam (next part of subsoil)

25 to 32 inches—brown, calcareous extremely cobbly loam (next part of subsoil)

32 to 38 inches—pale brown, calcareous extremely cobbly loam (lower part of subsoil)

38 inches—basalt

#### Sohappy

0 to 4 inches—yellowish brown silt loam (surface layer)

4 to 17 inches—pale brown silt loam (upper part of subsoil)

17 to 25 inches—light yellowish brown, calcareous gravelly silt loam (next part of subsoil)

25 to 41 inches—light brownish gray, calcareous cobbly loam (next part of subsoil)

41 to 47 inches—light brownish gray, calcareous extremely cobbly clay loam (lower part of subsoil)

47 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Fortyday—shallow; Drino—moderately deep; Sohappy—deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Fortyday—very low; Drino—low; Sohappy—very high

*Restriction to rooting depth:* Fortyday—basalt at a depth of 14 to 20 inches; Drino—basalt at a depth of 20 to 40 inches; Sohappy—basalt at a depth of 40 to 60 inches

### **Contrasting Inclusions**

- Rock outcrop
- Weirman and Esquatzel soils
- Nevo soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Fortyday)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, slope, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer, stones on surface, slope

*Brush control:* Severe—rock fragments in surface layer, stones on surface, slope

##### **(Drino)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—slope, rock fragments in surface layer, stones on surface

*Brush control:* Severe—rock fragments in surface layer, stones on surface, slope

##### **(Sohappy)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

## **74—Fortyday-Nevo-Rock outcrop complex, 3 to 15 percent slopes**

### **Composition**

*Fortyday and similar soils—*35 percent

*Nevo and similar soils—*30 percent

*Rock outcrop—*25 percent

*Contrasting inclusions—*10 percent

### **Setting**

*Position on landscape:* Fortyday—benches; Nevo—benches, hillslopes; Rock outcrop—benches

*Parent material:* Fortyday—residuum derived from basalt, slope alluvium; Nevo—loess, residuum derived from basalt; Rock outcrop—basalt

*Slope range:* 3 to 15 percent

*Elevation:* 600 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

#### **Fortyday**

0 to 3 inches—brown stony sandy loam (surface layer)

3 to 10 inches—brown very gravelly loam (upper part of subsoil)

10 to 13 inches—brown very gravelly loam (lower part of subsoil)

13 inches—basalt

#### **Nevo**

0 to 2 inches—brown stony sandy loam (surface layer)

2 to 8 inches—brown extremely gravelly loam (subsoil)

8 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Fortyday—shallow; Nevo—very shallow

*Drainage class:* Well drained

*Permeability:* Fortyday—moderate; Nevo—moderately slow

*Available water capacity:* Fortyday—moderate; Nevo—very low

*Restriction to rooting depth:* Fortyday—basalt at a depth of 14 to 20 inches; Nevo—basalt at a depth of 5 to 10 inches

### **Description of Rock Outcrop**

Exposures of barren basalt

### **Contrasting Inclusions**

- Prosser soils
- Kiona soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Fortyday)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, Rock outcrop, droughty surface layer

*Brush control:* Severe—Rock outcrop

#### **(Nevo)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, rock fragments in surface layer, droughty surface layer, Rock outcrop

*Brush control:* Severe—stones on surface, rock fragments in surface layer, Rock outcrop

## **75—Fortyday-Rubble land-Rock outcrop complex, 45 to 70 percent slopes**

### **Composition**

*Fortyday and similar soils*—35 percent

*Rubble land*—30 percent

*Rock outcrop*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* South-facing hillslopes

*Parent material:* Fortyday—residuum and colluvium derived from basalt, loess; Rubble land and Rock outcrop—basalt

*Slope range:* 45 to 70 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Fortyday**

#### **Typical profile**

0 to 3 inches—yellowish brown very stony loam (upper part of surface layer)

3 to 6 inches—yellowish brown very gravelly loam (lower part of surface layer)

6 to 10 inches—yellowish brown very gravelly loam (upper part of subsoil)

10 to 15 inches—yellowish brown extremely cobbly loam (lower part of subsoil)

15 inches—basalt

#### **Soil properties and qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Very low

*Potential rooting depth:* Basalt at a depth of 14 to 20 inches

### **Rubble Land**

Areas of stones and boulders

### **Rock Outcrop**

Exposures of barren basalt

### **Contrasting Inclusions**

- Kiona soils
- Drino soils
- Weirman and Esquatzel soils
- Nevo soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Fortyday)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, slope, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, slope, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope  
*Seeding:* Severe—depth to bedrock, droughty surface layer, slope  
*Brush control:* Severe—slope

## **76—Frint-Gidwin-Rubble land complex, 45 to 70 percent slopes**

### **Composition**

*Frint and similar soils*—35 percent  
*Gidwin and similar soils*—30 percent  
*Rubble land*—25 percent  
*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Frint—concave and slightly convex areas on north-facing hillslopes; Gidwin and Rubble land—strongly convex areas on north-facing hillslopes

*Parent material:* Frint—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Gidwin—colluvium derived from basalt, loess; Rubble land—basalt

*Slope range:* 45 to 70 percent

*Elevation:* 3,100 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 42 to 44 degrees F

*Frost-free season (32 degrees F):* 90 to 110 days

### **Typical Profile**

#### **Frint**

0 to 8 inches—dark grayish brown gravelly silt loam (upper part of surface layer)  
 8 to 12 inches—brown gravelly silt loam (lower part of surface layer)  
 12 to 17 inches—dark yellowish brown very gravelly loam (upper part of subsoil)  
 17 to 20 inches—brown very gravelly loam (next part of subsoil)  
 20 to 24 inches—brown extremely cobbly loam (next part of subsoil)  
 24 to 28 inches—yellowish brown extremely cobbly loam (lower part of subsoil)  
 28 inches—basalt

#### **Gidwin**

0 to 3 inches—dark grayish brown cobbly silt loam (upper part of surface layer)  
 3 to 7 inches—brown very gravelly loam (lower part of surface layer)

7 to 12 inches—brown extremely gravelly loam (upper part of subsoil)  
 12 to 17 inches—brown extremely gravelly loam (lower part of subsoil)  
 17 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Frint—moderately deep; Gidwin—shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Frint—low; Gidwin—very low

*Restriction to rooting depth:* Frint—basalt at a depth of 20 to 40 inches; Gidwin—basalt at a depth of 14 to 20 inches

### **Description of Rubble Land**

Areas of stones and boulders

### **Contrasting Inclusions**

- Hogranch soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Frint)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

#### **(Gidwin)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, slope

*Pipelines:* Severe—depth to bedrock, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, slope

*Brush control:* Severe—slope

## **77—Frint-Hogranch complex, 45 to 70 percent slopes**

### **Composition**

*Frint and similar soils*—45 percent

*Hogranch and similar soils*—30 percent

*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Frint—slightly convex and slightly concave areas on north-facing hillslopes; Hogranch—strongly concave areas on north-facing hillslopes

*Parent material:* Frint—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Hogranch—loess mixed with volcanic ash in the upper part, colluvium

*Slope range:* 45 to 70 percent

*Elevation:* 3,100 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 42 to 44 degrees F

*Frost-free season (32 degrees F):* 90 to 110 days

### **Typical Profile**

#### **Frint**

- 0 to 8 inches—dark grayish brown gravelly silt loam (upper part of surface layer)
- 8 to 12 inches—brown gravelly silt loam (lower part of surface layer)
- 12 to 17 inches—dark yellowish brown very gravelly loam (upper part of subsoil)
- 17 to 20 inches—brown very gravelly loam (next part of subsoil)
- 20 to 24 inches—brown extremely cobbly loam (next part of subsoil)
- 24 to 28 inches—yellowish brown extremely cobbly loam (lower part of subsoil)
- 28 inches—basalt

#### **Hogranch**

- 0 to 8 inches—dark grayish brown silt loam (upper part of surface layer)
- 8 to 15 inches—dark brown gravelly silt loam (lower part of surface layer)
- 15 to 21 inches—brown gravelly loam (upper part of subsoil)
- 21 to 34 inches—brown extremely gravelly loam (middle part of subsoil)
- 34 to 46 inches—yellowish brown extremely cobbly loam (lower part of subsoil)
- 46 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Frint—moderately deep; Hogranch—deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Frint—low; Hogranch—high

*Restriction to rooting depth:* Frint—basalt at a depth of 20 to 40 inches; Hogranch—basalt at a depth of 40 to 60 inches

### **Contrasting Inclusions**

- Gidwin soils
- Rock outcrop
- Rubble land

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

## **78—Frint-Hogranch-Gidwin complex, 45 to 70 percent slopes**

### **Composition**

*Frint and similar soils*—35 percent

*Hogranch and similar soils*—30 percent

*Gidwin and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Frint—slightly convex and slightly concave areas on north-facing hillslopes; Hogranch—strongly concave areas on north-facing hillslopes; Gidwin—strongly convex areas on north-facing hillslopes

*Parent material:* Frint—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Hogranch—loess mixed with volcanic ash in the upper part, colluvium; Gidwin—colluvium derived from basalt, loess

*Slope range:* 45 to 70 percent

*Elevation:* 3,100 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 42 to 44 degrees F

*Frost-free season (32 degrees F):* 90 to 110 days

### **Typical Profile**

#### **Frint**

- 0 to 8 inches—dark grayish brown gravelly silt loam (upper part of surface layer)

8 to 12 inches—brown gravelly silt loam (lower part of surface layer)  
 12 to 17 inches—dark yellowish brown very gravelly loam (upper part of subsoil)  
 17 to 20 inches—brown very gravelly loam (next part of subsoil)  
 20 to 24 inches—brown extremely cobbly loam (next part of subsoil)  
 24 to 28 inches—yellowish brown extremely cobbly loam (lower part of subsoil)  
 28 inches—basalt

### **Hogranch**

0 to 8 inches—dark grayish brown silt loam (upper part of surface layer)  
 8 to 15 inches—dark brown gravelly silt loam (lower part of surface layer)  
 15 to 21 inches—brown gravelly loam (upper part of subsoil)  
 21 to 34 inches—brown extremely gravelly loam (middle part of subsoil)  
 34 to 46 inches—yellowish brown extremely cobbly loam (lower part of subsoil)  
 46 inches—basalt

### **Gidwin**

0 to 3 inches—dark grayish brown cobbly silt loam (upper part of surface layer)  
 3 to 7 inches—brown very gravelly loam (lower part of surface layer)  
 7 to 12 inches—brown extremely gravelly loam (upper part of subsoil)  
 12 to 17 inches—brown extremely gravelly loam (lower part of subsoil)  
 17 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Frint—moderately deep; Hogranch—deep; Gidwin—shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Frint—low; Hogranch—high; Gidwin—very low

*Restriction to rooting depth:* Frint—basalt at a depth of 20 to 40 inches; Hogranch—basalt at a depth of 40 to 60 inches; Gidwin—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Rock outcrop
- Rubble land

### **Major Uses**

Military training, livestock grazing, wildlife habitat

## **Livestock Grazing**

### **Development limitations**

#### **(Frint and Hogranch)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

#### **(Gidwin)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, slope

*Pipelines:* Severe—depth to bedrock, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, slope

*Brush control:* Severe—slope

## **79—Gorskel complex, 3 to 15 percent slopes**

### **Composition**

*Gorskel silt loam and similar soils—*40 percent

*Gorskel cobbly loam and similar soils—*35 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Gorskel silt loam**

0 to 5 inches—brown silt loam (surface layer)

5 to 10 inches—brown gravelly silt loam (upper part of subsoil)

10 to 16 inches—yellowish brown, calcareous very cobbly clay loam (lower part of subsoil)

16 to 26 inches—indurated, lime- and silica-cemented hardpan

26 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Gorskel cobbly loam**

0 to 5 inches—brown cobbly loam (surface layer)

5 to 9 inches—brown very gravelly loam (upper part of subsoil)  
 9 to 14 inches—yellowish brown, calcareous very gravelly clay loam (lower part of subsoil)  
 14 to 24 inches—indurated, lime- and silica-cemented hardpan  
 24 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Shallow to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderately slow above the hardpan  
*Available water capacity:* Gorskel silt loam—low; Gorskel cobbly loam—very low  
*Restriction to rooting depth:* Hardpan at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Selah and Manastash soils
- Horseflat soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to hardpan  
*Pipelines:* Severe—depth to hardpan  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Severe—depth to hardpan  
*Brush control:* Slight

## **80—Gorst loam, 2 to 5 percent slopes**

### **Composition**

*Gorst and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Alluvial fans  
*Parent material:* Loess  
*Slope range:* 2 to 5 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 6 inches—brown loam (surface layer)

6 to 9 inches—brown loam (upper part of subsoil)  
 9 to 14 inches—yellowish brown gravelly loam (lower part of subsoil)  
 14 to 24 inches—indurated, lime- and silica-cemented hardpan  
 24 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Shallow to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderate above the hardpan  
*Available water capacity:* Low  
*Restriction to rooting depth:* Hardpan at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Selah and Manastash soils
- Horseflat soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to hardpan  
*Pipelines:* Severe—depth to hardpan  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Severe—depth to hardpan  
*Brush control:* Slight

## **81—Grinrod-Horseflat complex, 15 to 30 percent slopes**

### **Composition**

*Grinrod and similar soils*—45 percent  
*Horseflat and similar soils*—35 percent  
*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Grinrod—slightly concave areas on hillslopes; Horseflat—slightly convex areas on hillslopes  
*Parent material:* Colluvium and residuum derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Grinrod

0 to 4 inches—brown very cobbly loam (surface layer)  
 4 to 11 inches—brown very gravelly loam (upper part of subsoil)  
 11 to 18 inches—yellowish brown very gravelly loam (middle part of subsoil)  
 18 to 25 inches—light yellowish brown very gravelly loam (lower part of subsoil)  
 25 inches—basalt

#### Horseflat

0 to 4 inches—brown very cobbly loam (upper part of surface layer)  
 4 to 9 inches—brown very gravelly loam (lower part of surface layer)  
 9 to 16 inches—brown extremely gravelly loam (subsoil)  
 16 inches—basalt

### Soil Properties and Qualities

*Depth class:* Grinrod—moderately deep; Horseflat—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Grinrod—low; Horseflat—very low

*Restriction to rooting depth:* Grinrod—basalt at a depth of 20 to 40 inches; Horseflat—basalt at a depth of 12 to 20 inches

### Contrasting Inclusions

- Argabak soils
- Esquatzel and Weirman soils
- Rock outcrop

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development Limitations

##### (Grinrod)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—slope

*Seeding:* Severe—stones on surface, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

##### (Horseflat)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—stones on surface, rock fragments in surface layer

### 82—Grinrod-Horseflat complex, 45 to 60 percent slopes

#### Composition

*Grinrod and similar soils:* 45 percent

*Horseflat and similar soils:* 35 percent

*Contrasting inclusions:* 20 percent

#### Setting

*Position on landscape:* Grinrod—slightly concave areas on hillslopes; Horseflat—slightly convex areas on hillslopes

*Parent material:* Colluvium and residuum derived from basalt, loess

*Slope range:* 45 to 60 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Grinrod

0 to 4 inches—brown very cobbly loam (surface layer)  
 4 to 11 inches—very gravelly loam (upper part of subsoil)  
 11 to 18 inches—yellowish brown very gravelly loam (middle part of subsoil)  
 18 to 25 inches—light yellowish brown very gravelly loam (lower part of subsoil)  
 25 inches—basalt

#### Horseflat

0 to 4 inches—brown very cobbly loam (upper part of surface layer)  
 4 to 9 inches—brown very gravelly loam (lower part of surface layer)  
 9 to 16 inches—brown extremely gravelly loam (subsoil)  
 16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Grinrod—moderately deep; Horseflat—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Grinrod—low; Horseflat—very low

*Restriction to rooting depth:* Grinrod—basalt at a depth of 20 to 40 inches; Horseflat—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Esquatzel and Weirman soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Grinrod)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer, slope

*Pipelines:* Severe—rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

##### **(Horseflat)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, depth to bedrock

*Pipelines:* Severe—slope, depth to bedrock

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

### **83—Haploxerolls-Orthents-Aquolls complex, channeled, 0 to 5 percent slopes**

#### **Composition**

*Haploxerolls and similar soils*—40 percent

*Orthents and similar soils*—25 percent

*Aquolls and similar soils*—15 percent

*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Haploxerolls—stream terraces;

Orthents—lowest terrace on flood plains;

Aquolls—channels on flood plains

*Parent material:* Alluvium

*Slope range:* 0 to 5 percent

*Elevation:* 500 to 2,500 feet

*Average annual precipitation:* 6 to 12 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 130 to 195 days

### **Representative Profile**

#### **Haploxerolls**

0 to 14 inches—grayish brown, calcareous silt loam (surface layer)

14 to 60 inches—stratified, calcareous, brown fine sandy loam to pale brown silt loam (substratum)

#### **Orthents**

0 to 6 inches—grayish brown very cobbly loamy sand (surface layer)

6 to 60 inches—grayish brown extremely gravelly sand (substratum)

#### **Aquolls**

0 to 6 inches—dark grayish brown cobbly fine sandy loam (surface layer)

6 to 10 inches—dark grayish brown gravelly sandy loam (upper part of subsoil)

10 to 20 inches—grayish brown extremely gravelly sandy loam (middle part of subsoil)

20 to 60 inches—grayish brown extremely gravelly loamy sand (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Haploxerolls and Orthents—very deep;

Aquolls—very deep to moderately deep

*Drainage class:* Haploxerolls—moderately well

drained; Orthents—somewhat excessively

drained; Aquolls—somewhat poorly drained

*Permeability:* Haploxerolls—moderate; Orthents—very rapid; Aquolls—moderate over very rapid

*Available water capacity:* Haploxerolls—very high;

Orthents—very low; Aquolls—low

*Potential rooting depth:* Haploxerolls and Orthents—

more than 60 inches; Aquolls—more than 20

inches

*Frequency of flooding:* Orthents—occasional in

January through May; Aquolls—frequent in

January through May

*Depth to seasonal high water table:* Aquolls—at the

surface to a depth of 18 inches in January through May

### **Contrasting Inclusions**

- Esquatzel and Weirman soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Haploxerolls)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Moderate

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—seepage

*Seeding:* Moderate—soil reaction

*Brush control:* Slight

#### **(Orthents)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—seepage

*Seeding:* Severe—stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—stones on surface, rock fragments in surface layer

#### **(Aquolls)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—seepage

*Seeding:* Severe—stones on surface, droughty surface layer, rock fragments in surface layer, wetness

*Brush control:* Severe—stones on surface, rock fragments in surface layer

## **84—Horseflat very cobbly loam, 3 to 15 percent slopes**

### **Composition**

*Horseflat and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Hillslopes, ridgetops, benches

*Parent material:* Colluvium and residuum derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)

4 to 9 inches—brown very gravelly loam (lower part of surface layer)

9 to 16 inches—brown extremely gravelly loam (subsoil)

16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Rock outcrop
- Grinrod soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **85—Horseflat very cobbly loam, 15 to 30 percent slopes**

### **Composition**

*Horseflat and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* South-facing hillslopes

*Parent material:* Colluvium and residuum derived from basalt, loess

*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)  
 4 to 9 inches—brown very gravelly loam (lower part of surface layer)  
 9 to 16 inches—brown extremely gravelly loam (subsoil)  
 16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Grinrod soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock  
*Pipelines:* Severe—depth to bedrock  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer  
*Brush control:* Severe—rock fragments in surface layer

## **86—Kiona very stony loam, 45 to 60 percent slopes**

### **Composition**

*Kiona and similar soils*—80 percent  
*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* North-facing hillslopes  
*Parent material:* Colluvium derived from basalt, loess

*Slope range:* 45 to 60 percent  
*Elevation:* 500 to 2,000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

0 to 4 inches—brown very stony loam (surface layer)  
 4 to 21 inches—yellowish brown very gravelly loam (upper part of subsoil)  
 21 to 48 inches—pale brown, calcareous extremely gravelly loam (middle part of subsoil)  
 48 to 60 inches—light yellowish brown, calcareous extremely gravelly loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Moderate  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Drino soils
- Haploxerolls and Orthents
- Rubble land
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—slope, rock fragments in surface layer  
*Pipelines:* Severe—slope, rock fragments in surface layer  
*Livestock ponds:* Severe—slope  
*Seeding:* Severe—slope, stones on surface, rock fragments in surface layer  
*Brush control:* Severe—slope, stones on surface, rock fragments in surface layer

## **87—Kiona-Rubble land complex, 30 to 75 percent slopes**

### **Composition**

*Kiona and similar soils*—60 percent  
*Rubble land*—20 percent  
*Contrasting inclusions*—20 percent

**Setting**

*Position on landscape:* South-facing hillslopes

*Parent material:* Kiona—colluvium derived from basalt, loess; Rubble land—basalt

*Slope range:* 30 to 75 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

**Kiona****Typical profile**

0 to 4 inches—brown very stony loam (surface layer)

4 to 21 inches—yellowish brown very gravelly loam (upper part of subsoil)

21 to 48 inches—pale brown, calcareous extremely gravelly loam (middle part of subsoil)

48 to 60 inches—light yellowish brown, calcareous extremely gravelly loam (lower part of subsoil)

**Soil properties and qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* More than 60 inches

**Rubble Land**

Areas of stones and boulders

**Contrasting Inclusions**

- Drino soils
- Haploxerolls and Orthents
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Kiona)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope, stones on surface, rock fragments in surface layer

*Brush control:* Severe—slope, stones on surface, rock fragments in surface layer

**88—Lainand-Tanksel complex, 30 to 45 percent slopes****Composition**

*Lainand and similar soils—*45 percent

*Tanksel and similar soils—*35 percent

*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Lainand—strongly concave areas on north-facing hillslopes; Tanksel—slightly convex and slightly concave areas on north-facing hillslopes

*Parent material:* Lainand—colluvium, loess mixed with volcanic ash in the upper part; Tanksel—residuum and colluvium derived from basalt, slope alluvium, loess mixed with volcanic ash in the upper part

*Slope range:* 30 to 45 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

**Typical Profile****Lainand**

0 to 4 inches—brown gravelly loam (upper part of surface layer)

4 to 22 inches—brown very gravelly loam (lower part of surface layer)

22 to 30 inches—yellowish brown extremely gravelly clay loam (upper part of subsoil)

30 to 43 inches—dark brown extremely cobbly loam (lower part of subsoil)

43 inches—bedrock

**Tanksel**

0 to 4 inches—dark grayish brown loam (upper part of surface layer)

4 to 12 inches—dark grayish brown gravelly loam (lower part of surface layer)

12 to 22 inches—brown very gravelly clay loam (upper part of subsoil)

22 to 30 inches—yellowish brown very gravelly clay loam (middle part of subsoil)

30 to 34 inches—brown extremely gravelly clay (lower part of subsoil)

34 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Lainand—deep; Tanksel—moderately deep

*Drainage class:* Well drained

*Permeability:* Lainand—moderately slow; Tanksel—slow

*Available water capacity:* Moderate

*Restriction to rooting depth:* Lainand—basalt at a depth of 40 to 60 inches; Tanksel—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Windy soils
- Camaspatch soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Lainand)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer, slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

#### **(Tanksel)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer

*Brush control:* Severe—slope

## **89—Laric very gravelly loam, 3 to 15 percent slopes**

### **Composition**

*Laric and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Ridgetops, benches

*Parent material:* Loess, residuum derived from basalt

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 3 inches—brown very gravelly loam (surface layer)

3 to 8 inches—yellowish brown gravelly clay loam (subsoil)

8 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Very shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 5 to 12 inches

### **Contrasting Inclusions**

- Vantage and Horseflat soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock

*Brush control:* Moderate—rock fragments in surface layer

## **90—Laric-Zen complex, 3 to 15 percent slopes**

### **Composition**

*Laric and similar soils—*45 percent

*Zen and similar soils—*35 percent

*Contrasting inclusions—*20 percent

### **Setting**

*Position on landscape:* Laric—slightly convex areas and areas between mounds on ridgetops and benches; Zen—concave areas and mounds on ridgetops and benches

*Parent material:* Laric—loess, residuum derived from basalt; Zen—loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 120 to 170 days

### Typical Profile

#### Laric

0 to 3 inches—brown very gravelly loam (surface layer)  
 3 to 8 inches—yellowish brown gravelly clay loam (subsoil)  
 8 inches—basalt

#### Zen

0 to 12 inches—brown silt loam (surface layer)  
 12 to 18 inches—brown silty clay loam (upper part of subsoil)  
 18 to 25 inches—yellowish brown clay loam (lower part of subsoil)  
 25 inches—basalt

### Soil Properties and Qualities

*Depth class:* Laric—very shallow; Zen—moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Laric—very low; Zen—moderate

*Restriction to rooting depth:* Laric—basalt at a depth of 5 to 12 inches; Zen—basalt at a depth of 20 to 40 inches

### Contrasting Inclusions

- Vantage and Horseflat soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

### Development limitations

#### (Laric)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock

*Brush control:* Moderate—rock fragments in surface layer

#### (Zen)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—depth to bedrock

*Pipelines:* Moderate—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

## 91—Levnik-Nosser-Nevo complex, 3 to 15 percent slopes

### Composition

*Levnik and similar soils*—35 percent

*Nosser and similar soils*—30 percent

*Nevo and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### Setting

*Position on landscape:* Levnik and Nosser—hillslopes, dissected plateaus; Nevo—benches, hillslopes, dissected plateaus

*Parent material:* Levnik—residuum derived from basalt, slope alluvium, additions of loess; Nosser—loess, slope alluvium, residuum derived from basalt; Nevo—loess, residuum derived from basalt

*Slope range:* 3 to 15 percent

*Elevation:* 1,200 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### Typical Profile

#### Levnik

0 to 4 inches—brown very gravelly loam (surface layer)  
 4 to 8 inches—brown clay loam (upper part of subsoil)  
 8 to 13 inches—brown gravelly clay (middle part of subsoil)  
 13 to 16 inches—brown extremely gravelly clay (lower part of subsoil)  
 16 inches—basalt

#### Nosser

0 to 3 inches—brown gravelly loam (surface layer)  
 3 to 10 inches—brown clay loam (upper part of subsoil)  
 10 to 18 inches—brown gravelly clay loam (middle part of subsoil)  
 18 to 22 inches—brown, calcareous extremely gravelly clay loam (lower part of subsoil)  
 22 inches—basalt

#### Nevo

0 to 2 inches—brown very cobbly loam (surface layer)  
 2 to 9 inches—brown very gravelly clay loam (subsoil)  
 9 inches—basalt

### Soil Properties and Qualities

*Depth class:* Levnik—shallow; Nosser—moderately deep; Nevo—very shallow

*Drainage class:* Well drained

*Permeability:* Levnik—slow; Nosser and Nevo—moderately slow

*Available water capacity:* Levnik and Nosser—low; Nevo—very low

*Restriction to rooting depth:* Levnik—basalt at a depth of 12 to 20 inches; Nosser—basalt at a depth of 20 to 40 inches; Nevo—basalt at a depth of 5 to 10 inches

### **Contrasting Inclusions**

- Nevo soils that have slopes of more than 15 percent

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Levnik)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Moderate—gravel on surface, rock fragments in surface layer

##### **(Nosser)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

##### **(Nevo)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **92—Malaga gravelly sandy loam, 5 to 10 percent slopes**

### **Composition**

*Malaga and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Terraces

*Parent material:* Glacial outwash

*Slope range:* 5 to 10 percent

*Elevation:* 500 to 1,200 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

0 to 4 inches—brown gravelly sandy loam (upper part of surface layer)

4 to 9 inches—brown gravelly fine sandy loam (lower part of surface layer)

9 to 15 inches—pale brown very gravelly fine sandy loam (subsoil)

15 to 20 inches—light yellowish brown extremely gravelly loamy sand (upper part of substratum)

20 to 60 inches—multicolored extremely gravelly coarse sand (lower part of substratum)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid over very rapid

*Available water capacity:* Low

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Fortyday soils
- Nevo soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer

*Pipelines:* Moderate—rock fragments in surface layer

*Livestock ponds:* Severe—seepage

*Seeding:* Moderate—rock fragments in surface layer, droughty surface layer  
*Brush control:* Slight

### **93—Malaga cobbly sandy loam, 3 to 15 percent slopes**

#### **Composition**

*Malaga and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* Terraces  
*Parent material:* Glacial outwash  
*Slope range:* 3 to 15 percent  
*Elevation:* 500 to 1,200 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

0 to 4 inches—brown cobbly sandy loam (upper part of surface layer)  
 4 to 9 inches—brown gravelly fine sandy loam (lower part of surface layer)  
 9 to 15 inches—pale brown very gravelly fine sandy loam (subsoil)  
 15 to 20 inches—light yellowish brown extremely gravelly loamy sand (upper part of substratum)  
 20 to 60 inches—multicolored extremely gravelly coarse sand (lower part of substratum)

#### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Somewhat excessively drained  
*Permeability:* Moderately rapid over very rapid  
*Available water capacity:* Low  
*Potential rooting depth:* More than 60 inches

#### **Contrasting Inclusions**

- Nevo soils
- Fortyday soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Moderate—rock fragments in surface layer  
*Livestock ponds:* Severe—see page  
*Seeding:* Moderate—rock fragments in surface layer, droughty surface layer  
*Brush control:* Moderate—rock fragments in surface layer

### **94—Manastash loam, 2 to 5 percent slopes**

#### **Composition**

*Manastash and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* Old alluvial fans  
*Parent material:* Loess, alluvium  
*Slope range:* 2 to 5 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

0 to 4 inches—brown loam (upper part of surface layer)  
 4 to 10 inches—brown loam (lower part of surface layer)  
 10 to 16 inches—brown gravelly clay loam (upper part of subsoil)  
 16 to 20 inches—dark brown gravelly clay (middle part of subsoil)  
 20 to 25 inches—dark brown, calcareous gravelly clay (lower part of subsoil)  
 25 to 35 inches—indurated, lime- and silica-cemented hardpan  
 35 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Slow above the hardpan  
*Available water capacity:* Moderate  
*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

#### **Contrasting Inclusions**

- Gorst, Gorskel, and Durtash soils
- Meloza soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Slight

*Brush control:* Slight

**95—Manastash loam, 5 to 10 percent slopes****Composition**

*Manastash and similar soils—*75 percent

*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 5 to 10 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 4 inches—brown loam (upper part of surface layer)

4 to 10 inches—brown loam (lower part of surface layer)

10 to 16 inches—brown gravelly clay loam (upper part of subsoil)

16 to 20 inches—dark brown gravelly clay (middle part of subsoil)

20 to 25 inches—dark brown, calcareous gravelly clay (lower part of subsoil)

25 to 35 inches—indurated, lime- and silica-cemented hardpan

35 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

**Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan

*Drainage class:* Well drained

*Permeability:* Slow above the hardpan

*Available water capacity:* Moderate

*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Gorst, Gorskel, and Durtash soils

- Benwy and Meloza soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Slight

*Brush control:* Slight

**96—Manastash-Durtash complex, 5 to 10 percent slopes****Composition**

*Manastash and similar soils—*45 percent

*Durtash and similar soils—*35 percent

*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Manastash—smooth areas on alluvial fans; Durtash—slightly convex areas on alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 5 to 10 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile****Manastash**

0 to 4 inches—brown loam (upper part of surface layer)

4 to 10 inches—brown loam (lower part of surface layer)

10 to 16 inches—brown gravelly clay loam (upper part of subsoil)

16 to 20 inches—dark brown gravelly clay (middle part of subsoil)

20 to 25 inches—dark brown, calcareous gravelly clay (lower part of subsoil)

25 to 35 inches—indurated, lime- and silica-cemented hardpan

35 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Durtash**

0 to 4 inches—grayish brown stony loam (surface layer)

4 to 9 inches—brown very gravelly clay loam (upper part of subsoil)

9 to 15 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

15 to 25 inches—indurated, lime- and silica-cemented hardpan

25 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Manastash—moderately deep to a hardpan; Durtash—shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Slow above the hardpan

*Available water capacity:* Manastash—moderate; Durtash—very low

*Restriction to rooting depth:* Manastash—hardpan at a depth of 20 to 40 inches; Durtash—hardpan at a depth of 10 to 20 inches

### **Contrasting Inclusions**

- Gorst and Gorskel soils
- Benwy and Meloza soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Manastash)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Slight

*Brush control:* Slight

##### **(Durtash)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan

*Brush control:* Slight

## **97—Manastash-Durtash complex, 15 to 30 percent slopes**

### **Composition**

*Manastash and similar soils—*45 percent

*Durtash and similar soils—*35 percent

*Contrasting inclusions—*20 percent

### **Setting**

*Position on landscape:* Manastash—smooth areas on alluvial fans; Durtash—slightly convex areas on alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Manastash**

0 to 4 inches—brown loam (upper part of surface layer)

4 to 10 inches—brown loam (lower part of surface layer)

10 to 16 inches—brown gravelly clay loam (upper part of subsoil)

16 to 20 inches—dark brown gravelly clay (middle part of subsoil)

20 to 25 inches—dark brown, calcareous gravelly clay (lower part of subsoil)

25 to 35 inches—indurated, lime- and silica-cemented hardpan

35 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Durtash**

0 to 4 inches—grayish brown stony loam (upper part of surface layer)

4 to 9 inches—brown very gravelly clay loam (upper part of subsoil)

9 to 15 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

15 to 25 inches—indurated, lime- and silica-cemented hardpan

25 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Manastash—moderately deep to a hardpan; Durtash—shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Slow above the hardpan

*Available water capacity:* Manastash—moderate; Durtash—very low

*Restriction to rooting depth:* Manastash—hardpan at a depth of 20 to 40 inches; Durtash—hardpan at a depth of 10 to 20 inches

### **Contrasting Inclusions**

- Gorst and Gorskel soils
- Meloza and Benwya soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Manastash)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Moderate—depth to hardpan, slope

*Livestock ponds:* Severe—depth to hardpan, slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

##### **(Durtash)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan, slope

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan

*Brush control:* Moderate—slope

### **98—Manastash-Meloza-Durtash complex, 15 to 30 percent slopes**

#### **Composition**

*Manastash and similar soils—*35 percent

*Meloza and similar soils—*30 percent

*Durtash and similar soils—*25 percent

*Contrasting inclusions—*10 percent

#### **Setting**

*Position on landscape:* Manastash—footslopes of uplifted areas on alluvial fans; Meloza—

escarpments of uplifted areas on alluvial fans; Durtash—convex areas of uplifted areas on alluvial fans

*Parent material:* Manastash and Durtash—loess, alluvium; Meloza—material derived from fine textured interbedded sediment

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Manastash**

0 to 4 inches—brown loam (upper part of surface layer)

4 to 10 inches—brown loam (lower part of surface layer)

10 to 16 inches—brown gravelly clay loam (upper part of subsoil)

16 to 20 inches—dark brown gravelly clay (middle part of subsoil)

20 to 25 inches—dark brown, calcareous gravelly clay (lower part of subsoil)

25 to 35 inches—indurated, lime- and silica-cemented hardpan

35 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Meloza**

0 to 3 inches—very dark grayish brown clay loam (surface layer)

3 to 14 inches—brown silty clay (upper part of subsoil)

14 to 21 inches—pale brown silty clay loam (next part of subsoil)

21 to 29 inches—pale brown, calcareous silty clay loam (next part of subsoil)

29 to 49 inches—pale brown, calcareous clay loam (next part of subsoil)

49 to 60 inches—light gray, calcareous clay loam (lower part of subsoil)

#### **Durtash**

0 to 4 inches—grayish brown stony loam (surface layer)

4 to 9 inches—brown very gravelly clay loam (upper part of subsoil)

9 to 15 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

15 to 25 inches—indurated, lime- and silica-cemented hardpan

25 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Manastash—moderately deep to a hardpan; Meloza—very deep; Durtash—shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Manastash and Durtash—slow above the hardpan; Meloza—slow

*Available water capacity:* Manastash—moderate; Meloza—very high; Durtash—very low

*Potential rooting depth:* Meloza—more than 60 inches

*Restriction to rooting depth:* Manastash—hardpan at a depth of 20 to 40 inches; Durtash—hardpan at a depth of 10 to 20 inches

### **Contrasting Inclusions**

- Benwy soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

#### **(Manastash)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Moderate—depth to hardpan, slope

*Livestock ponds:* Severe—depth to hardpan, slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

#### **(Meloza)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

#### **(Durtash)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan

*Brush control:* Moderate—slope

## **99—Manastash-Selah-Gorst complex, 15 to 30 percent slopes**

### **Composition**

*Manastash and similar soils*—35 percent

*Selah and similar soils*—30 percent

*Gorst and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Manastash—smooth areas on alluvial fans; Selah—alluvial fans; Gorst—slightly convex areas on alluvial fans

*Parent material:* Manastash and Selah—loess, alluvium; Gorst—loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Manastash**

0 to 4 inches—brown loam (upper part of surface layer)

4 to 10 inches—brown loam (lower part of surface layer)

10 to 16 inches—brown gravelly clay loam (upper part of subsoil)

16 to 20 inches—dark brown gravelly clay (middle part of subsoil)

20 to 25 inches—dark brown, calcareous gravelly clay (lower part of subsoil)

25 to 35 inches—indurated, lime- and silica-cemented hardpan

35 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Selah**

0 to 10 inches—brown silt loam (surface layer)

10 to 14 inches—yellowish brown silt loam (upper part of subsoil)

14 to 20 inches—yellowish brown silty clay loam (middle part of subsoil)

20 to 27 inches—brown, calcareous clay loam (lower part of subsoil)

27 to 37 inches—indurated, lime- and silica-cemented hardpan

37 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

**Gorst**

0 to 6 inches—brown loam (surface layer)  
 6 to 9 inches—brown loam (upper part of subsoil)  
 9 to 14 inches—yellowish brown gravelly loam (lower part of subsoil)  
 14 to 24 inches—indurated, lime- and silica-cemented hardpan  
 24 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

**Soil Properties and Qualities**

*Depth class:* Manastash and Selah—moderately deep to a hardpan; Gorst—shallow to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Manastash—slow above the hardpan; Selah—moderately slow above the hardpan; Gorst—moderate above the hardpan  
*Available water capacity:* Manastash—moderate; Selah—high; Gorst—low  
*Restriction to rooting depth:* Manastash and Selah—hardpan at a depth of 20 to 40 inches; Gorst—hardpan at a depth of 12 to 20 inches

**Contrasting Inclusions**

- Benwy and Meloza soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Manastash)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—depth to hardpan, slope  
*Pipelines:* Moderate—depth to hardpan, slope  
*Livestock ponds:* Severe—depth to hardpan, slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

**(Selah)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—slope  
*Pipelines:* Moderate—depth to hardpan, slope  
*Livestock ponds:* Severe—depth to hardpan, slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

**(Gorst)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to hardpan  
*Pipelines:* Severe—depth to hardpan  
*Livestock ponds:* Severe—depth to hardpan, slope  
*Seeding:* Severe—depth to hardpan  
*Brush control:* Severe—slope

**100—Marlic-Zen-Laric complex, 3 to 15 percent slopes****Composition**

*Marlic and similar soils—*45 percent  
*Zen and similar soils—*25 percent  
*Laric and similar soils—*20 percent  
*Contrasting inclusions—*10 percent

**Setting**

*Position on landscape:* Marlic—dissected plateaus; Zen—concave areas and mounds on dissected plateaus, ridgetops, and benches; Laric—slightly convex areas and areas between mounds on dissected plateaus, ridgetops, and benches  
*Parent material:* Marlic—loess, slope alluvium, residuum derived from basalt; Zen—loess; Laric—loess, residuum derived from basalt  
*Slope range:* 3 to 15 percent  
*Elevation:* 1,800 to 2,700 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile****Marlic**

0 to 6 inches—brown loam (surface layer)  
 6 to 12 inches—brown clay loam (upper part of subsoil)  
 12 to 15 inches—dark yellowish brown clay loam (lower part of subsoil)  
 15 inches—basalt

**Zen**

0 to 12 inches—brown silt loam (surface layer)  
 12 to 18 inches—brown silty clay loam (upper part of subsoil)  
 18 to 25 inches—yellowish brown, calcareous clay loam (lower part of subsoil)  
 25 inches—basalt

**Laric**

0 to 3 inches—brown very gravelly loam (surface layer)

3 to 9 inches—yellowish brown gravelly clay loam (subsoil)  
9 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Marlic—shallow; Zen—moderately deep; Laric—very shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Marlic—moderate; Zen—moderate; Laric—very low

*Restriction to rooting depth:* Marlic—basalt at a depth of 12 to 20 inches; Zen—basalt at a depth of 20 to 40 inches; Laric—basalt at a depth of 5 to 12 inches

### **Contrasting Inclusions**

- Vantage and Horseflat soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Marlic)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Moderate—depth to bedrock

*Brush control:* Slight

##### **(Zen)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

##### **(Laric)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock

*Brush control:* Moderate—rock fragments in surface layer

## **101—Meloza-Roza complex, 5 to 10 percent slopes**

### **Composition**

*Meloza and similar soils*—45 percent

*Roza and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Meloza—smooth areas on alluvial fans; Roza—slightly convex areas on alluvial fans

*Parent material:* Material derived from fine textured interbedded sediment

*Slope range:* 5 to 10 percent

*Elevation:* 1,450 to 2,500 feet

*Average annual precipitation:* 8 to 12 inches

*Average annual air temperature:* 49 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Meloza**

0 to 3 inches—very dark grayish brown clay loam (surface layer)

3 to 14 inches—brown silty clay (upper part of subsoil)

14 to 21 inches—pale brown silty clay loam (next part of subsoil)

21 to 29 inches—pale brown, calcareous silty clay loam (next part of subsoil)

29 to 49 inches—pale brown, calcareous clay loam (next part of subsoil)

49 to 60 inches—light gray, calcareous clay loam (lower part of subsoil)

#### **Roza**

0 to 3 inches—grayish brown clay (surface layer)

3 to 18 inches—grayish brown clay (upper part of subsoil)

18 to 60 inches—pale olive, calcareous clay (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Clerf soils
- Horseflat and Vantage soils

- Selah and Manastash soils
- Gorskel and Gorst soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Meloza)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—slope

*Seeding:* Slight

*Brush control:* Slight

##### **(Roza)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—too clayey

*Livestock ponds:* Moderate—slope

*Seeding:* Moderate—clayey surface layer

*Brush control:* Slight

## **102—Meloza-Roza complex, 10 to 15 percent slopes**

### **Composition**

*Meloza and similar soils—*45 percent

*Roza and similar soils—*35 percent

*Contrasting inclusions—*20 percent

### **Setting**

*Position on landscape:* Meloza—smooth areas on alluvial fans; Roza—slightly convex areas on alluvial fans

*Parent material:* Material derived from fine textured interbedded sediment

*Slope range:* 10 to 15 percent

*Elevation:* 1,450 to 2,500 feet

*Average annual precipitation:* 8 to 12 inches

*Average annual air temperature:* 49 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Meloza**

0 to 3 inches—very dark grayish brown clay loam (surface layer)

3 to 14 inches—brown silty clay (upper part of subsoil)

14 to 21 inches—pale brown silty clay loam (next part of subsoil)

21 to 29 inches—pale brown, calcareous silty clay loam (next part of subsoil)

29 to 49 inches—pale brown, calcareous clay loam (next part of subsoil)

49 to 60 inches—light gray, calcareous clay loam (lower part of subsoil)

#### **Roza**

0 to 3 inches—grayish brown clay (surface layer)

3 to 18 inches—grayish brown clay (upper part of subsoil)

18 to 60 inches—pale olive, calcareous clay (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Clerf soils
- Horseflat and Vantage soils
- Selah and Manastash soils
- Gorskel and Gorst soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Meloza)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Slight—slope

*Seeding:* Slight

*Brush control:* Slight

##### **(Roza)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Slight—slope

*Seeding:* Slight

*Brush control:* Slight

## 103—Meloza-Roza complex, 15 to 30 percent slopes

### Composition

*Meloza and similar soils*—45 percent

*Roza and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### Setting

*Position on landscape:* Meloza—smooth areas on alluvial fans; Roza—slightly convex areas on alluvial fans

*Parent material:* Material derived from fine textured interbedded sediment

*Slope range:* 15 to 30 percent

*Elevation:* 1,450 to 2,500 feet

*Average annual precipitation:* 8 to 12 inches

*Average annual air temperature:* 49 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Meloza

0 to 3 inches—very dark grayish brown clay loam (surface layer)

3 to 14 inches—brown silty clay (upper part of subsoil)

14 to 21 inches—pale brown silty clay loam (next part of subsoil)

21 to 29 inches—pale brown, calcareous silty clay loam (next part of subsoil)

29 to 49 inches—pale brown, calcareous clay loam (next part of subsoil)

49 to 60 inches—light gray, calcareous clay loam (lower part of subsoil)

#### Roza

0 to 3 inches—grayish brown clay (surface layer)

3 to 18 inches—grayish brown clay (upper part of subsoil)

18 to 60 inches—pale olive, calcareous clay (lower part of subsoil)

### Soil Properties and Qualities

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### Contrasting Inclusions

- Clerf soils
- Horseflat and Vantage soils
- Selah and Manastash soils
- Gorskel and Gorst soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Meloza)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

##### (Roza)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Moderate—too clayey, slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—clayey surface layer, slope

*Brush control:* Moderate—slope

## 104—Nack-Opnish complex, 0 to 2 percent slopes

### Composition

*Nack and similar soils*—45 percent

*Opnish and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### Setting

*Position on landscape:* Alluvial fans

*Parent material:* Alluvium

*Slope range:* 0 to 2 percent

*Elevation:* 1,900 to 2,100 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 150 days

### Typical Profile

#### Nack

0 to 6 inches—brown loam (surface layer)

6 to 15 inches—brown clay loam (upper part of subsoil)

15 to 60 inches—dark yellowish brown extremely gravelly sandy clay loam and sandy clay (lower part of subsoil)

#### Opnish

0 to 8 inches—dark gray loam (surface layer)

- 8 to 13 inches—dark gray clay loam (upper part of subsoil)  
 13 to 26 inches—dark grayish brown clay loam (lower part of subsoil)  
 26 to 37 inches—dark grayish brown extremely gravelly clay loam (upper part of substratum)  
 37 to 60 inches—brown extremely gravelly sandy clay (lower part of substratum)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability:* Nack—moderately slow; Opnish—slow

*Available water capacity:* Nack—medium; Opnish—high

*Potential rooting depth:* More than 60 inches

*Depth to seasonal high water table:* Nack—18 to 40 inches in May through October; Opnish—24 to 40 inches in May through October

### **Contrasting Inclusions**

- Soils that have an extremely gravelly loamy sand substratum
- Soils that have a weakly cemented substratum

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

#### **(Nack)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Slight

*Seeding:* Slight

*Brush control:* Slight

#### **(Opnish)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate

*Livestock ponds:* Slight

*Seeding:* Moderate

*Brush control:* Slight

## **105—Neppel-Scoon complex, 10 to 15 percent slopes**

### **Composition**

*Neppel and similar soils*—50 percent

*Scoon and similar soils*—25 percent

*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* Terraces

*Parent material:* Neppel—loess, glacial outwash; Scoon—loess

*Slope range:* 10 to 15 percent

*Elevation:* 800 to 1,200 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

#### **Neppel**

0 to 3 inches—brown loam (surface layer)

3 to 18 inches—pale brown loam (upper part of subsoil)

18 to 21 inches—light gray, calcareous loam (next part of subsoil)

21 to 25 inches—light gray, calcareous gravelly fine sandy loam (next part of subsoil)

25 to 60 inches—light brownish gray, calcareous extremely gravelly sand (lower part of subsoil)

#### **Scoon**

0 to 3 inches—pale brown loam (surface layer)

3 to 14 inches—light yellowish brown silt loam (upper part of subsoil)

14 to 17 inches—light brownish gray, calcareous gravelly silt loam (lower part of subsoil)

17 to 27 inches—indurated, lime- and silica-cemented hardpan

27 to 60 inches—stratified indurated material with lenses of extremely gravelly loam

### **Soil Properties and Qualities**

*Depth class:* Neppel—very deep; Scoon—shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Neppel—moderate over very rapid; Scoon—moderate above the hardpan

*Available water capacity:* Neppel—moderate; Scoon—low

*Potential rooting depth:* Neppel—more than 60 inches

*Restriction to rooting depth:* Scoon—hardpan at a depth of 10 to 20 inches

### **Contrasting Inclusions**

- Drysel soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Neppel)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—seepage, slope

*Seeding:* Slight

*Brush control:* Slight

##### **(Scoon)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan

*Brush control:* Slight

### **106—Nevo extremely gravelly sandy loam, 3 to 15 percent slopes**

#### **Composition**

*Nevo and similar soils—*80 percent

*Contrasting inclusions—*20 percent

#### **Setting**

*Position on landscape:* Ridgetops, benches

*Parent material:* Loess, residuum derived from basalt

*Slope range:* 3 to 15 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

0 to 2 inches—brown extremely gravelly sandy loam (surface layer)

2 to 7 inches—brown very gravelly clay loam (subsoil)

7 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Very shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 5 to 10 inches

### **Contrasting Inclusions**

- Disage and Fortyday soils

- Nosser soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

### **107—Nevo-Fortyday complex, 3 to 15 percent slopes**

#### **Composition**

*Nevo and similar soils—*50 percent

*Fortyday and similar soils—*30 percent

*Contrasting inclusions—*20 percent

#### **Setting**

*Position on landscape:* Nevo—ridgetops, benches, hillslopes; Fortyday—hillslopes

*Parent material:* Nevo—loess, residuum derived from basalt; Fortyday—residuum and colluvium derived from basalt with small additions of loess

*Slope range:* 3 to 15 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

##### **Nevo**

0 to 2 inches—pale brown very cobbly loam (surface layer)

2 to 8 inches—brown very gravelly clay loam (subsoil)

8 inches—basalt

##### **Fortyday**

0 to 4 inches—yellowish brown cobbly loam (upper part of surface layer)

- 4 to 9 inches—yellowish brown very gravelly loam (lower part of surface layer)  
 9 to 13 inches—yellowish brown very gravelly loam (upper part of subsoil)  
 13 to 17 inches—yellowish brown extremely cobbly loam (lower part of subsoil)  
 17 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Nevo—very shallow; Fortyday—shallow

*Drainage class:* Well drained

*Permeability:* Nevo—moderately slow; Fortyday—moderate

*Available water capacity:* Very low

*Potential rooting depth:* Nevo—basalt at a depth of 5 to 10 inches; Fortyday—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Drino soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Nevo)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—stones on surface, rock fragments in surface layer

#### **(Fortyday)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **108—Nevo complex, 3 to 15 percent slopes**

### **Composition**

*Nevo very cobbly loam and similar soils—*45 percent

*Nevo extremely gravelly sandy loam and similar soils—*30 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Ridgetops, benches

*Parent material:* Loess, residuum derived from basalt

*Slope range:* 3 to 15 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

#### **Nevo very cobbly loam**

0 to 2 inches—pale brown very cobbly loam (surface layer)

2 to 8 inches—brown very gravelly clay loam (subsoil)

8 inches—basalt

#### **Nevo extremely gravelly sandy loam**

0 to 2 inches—brown extremely gravelly sandy loam (surface layer)

2 to 8 inches—brown very gravelly clay loam (subsoil)

8 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Very shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 5 to 10 inches

### **Contrasting Inclusions**

- Disage and Fortyday soils
- Drino soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **109—Nevo complex, 15 to 30 percent slopes**

### **Composition**

*Nevo very cobbly loam and similar soils*—45 percent

*Nevo extremely gravelly sandy loam and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Ridgetops, benches, hillslopes

*Parent material:* Loess, residuum derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

#### **Nevo very cobbly loam**

0 to 2 inches—pale brown very cobbly loam (surface layer)

2 to 8 inches—brown very gravelly clay loam (subsoil)

8 inches—basalt

#### **Nevo extremely gravelly sandy loam**

0 to 2 inches—brown extremely gravelly sandy loam (surface layer)

2 to 8 inches—brown very gravelly clay loam (subsoil)

8 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Very shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 5 to 10 inches

### **Contrasting Inclusions**

- Disage and Fortyday soils
- Drino soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

## **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **110—Niben-Vantage-Benwy complex, 15 to 30 percent slopes**

### **Composition**

*Niben and similar soils*—35 percent

*Vantage and similar soils*—30 percent

*Benwy and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Niben—hillslopes and shoulders of dissected plateaus; Vantage—slightly convex areas on south-facing hillslopes; Benwy—concave areas on south-facing hillslopes

*Parent material:* Niben—interbedded sediment and slope alluvium with additions of loess;

Vantage—residuum and colluvium derived from basalt, loess; Benwy—loess, slope alluvium

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* Benwy and Vantage—9 to 12 inches; Niben—12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Niben**

0 to 4 inches—brown loam (surface layer)

4 to 18 inches—brown clay loam (upper part of subsoil)

18 to 51 inches—brown clay (middle part of subsoil)

51 to 60 inches—brown clay loam (lower part of subsoil)

#### **Vantage**

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 7 inches—brown very cobbly clay loam (upper part of subsoil)

7 to 16 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
16 inches—basalt

### **Benwy**

0 to 4 inches—brown silt loam (surface layer)  
4 to 9 inches—dark yellowish brown silt loam (upper part of subsoil)  
9 to 34 inches—yellowish brown silt loam (next part of subsoil)  
34 to 45 inches—yellowish brown silt loam (next part of subsoil)  
45 to 60 inches—pale brown gravelly loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Niben—very deep; Vantage—shallow; Benwy—very deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Niben and Vantage—slow; Benwy—moderate  
*Available water capacity:* Niben—high; Vantage—very low; Benwy—very high  
*Potential rooting depth:* Niben and Benwy—more than 60 inches  
*Restriction to rooting depth:* Vantage—basalt at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Niben and Benwy)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—slope  
*Pipelines:* Moderate—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

#### **(Vantage)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope  
*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer  
*Brush control:* Severe—rock fragments in surface layer

## **111—Norod-Horseflat complex, 15 to 30 percent slopes**

### **Composition**

*Norod and similar soils—*45 percent  
*Horseflat and similar soils—*35 percent  
*Contrasting inclusions—*20 percent

### **Setting**

*Position on landscape:* Norod—concave areas on north-facing hillslopes; Horseflat—convex areas on north-facing hillslopes  
*Parent material:* Norod—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Horseflat—colluvium and residuum derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,500 feet  
*Average annual precipitation:* Norod—12 to 15 inches with accumulation of snow; Horseflat—9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Norod**

0 to 10 inches—brown cobbly loam (surface layer)  
10 to 23 inches—brown very gravelly loam (upper part of subsoil)  
23 to 28 inches—dark yellowish brown very cobbly loam (middle part of subsoil)  
28 to 33 inches—brown, calcareous extremely cobbly loam (lower part of subsoil)  
33 inches—basalt

#### **Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)  
4 to 9 inches—brown very gravelly loam (lower part of surface layer)  
9 to 16 inches—brown extremely gravelly loam (subsoil)  
16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Norod—moderately deep; Horseflat—shallow

*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Norod—low; Horseflat—very low  
*Restriction to rooting depth:* Norod—basalt at a depth of 25 to 40 inches; Horseflat—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Esquatzel and Weirman soils
- Ralock soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Norod)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Moderate—rock fragments in surface layer, slope  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Moderate—rock fragments in surface layer, slope  
*Brush control:* Moderate—rock fragments in surface layer

##### **(Horseflat)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer  
*Brush control:* Severe—rock fragments in surface layer

## **112—Norod-Horseflat complex, 30 to 45 percent slopes**

### **Composition**

*Norod and similar soils*—45 percent  
*Horseflat and similar soils*—35 percent  
*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Norod—concave areas on north-facing hillslopes; Horseflat—convex areas on north-facing hillslopes  
*Parent material:* Norod—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Horseflat—colluvium and residuum derived from basalt, loess  
*Slope range:* 30 to 45 percent  
*Elevation:* 1,800 to 2,500 feet  
*Average annual precipitation:* Norod—12 to 15 inches with accumulation of snow; Horseflat—9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Norod**

0 to 10 inches—brown cobbly loam (surface layer)  
 10 to 23 inches—brown very gravelly loam (upper part of subsoil)  
 23 to 28 inches—dark yellowish brown very cobbly loam (middle part of subsoil)  
 28 to 33 inches—brown, calcareous extremely cobbly loam (lower part of subsoil)  
 33 inches—basalt

#### **Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)  
 4 to 9 inches—brown very gravelly loam (lower part of surface layer)  
 9 to 16 inches—brown extremely gravelly loam (subsoil)  
 16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Norod—moderately deep; Horseflat—shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Norod—low; Horseflat—very low  
*Restriction to rooting depth:* Norod—basalt at a depth of 25 to 40 inches; Horseflat—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Esquatzel and Weirman soils
- Ralock soils
- Rock outcrop

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Norod)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer, slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

*Brush control:* Severe—slope

##### (Horseflat)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

### 113—Norod-Horseflat complex, 45 to 60 percent slopes

#### Composition

*Norod and similar soils*—45 percent

*Horseflat and similar soils*—35 percent

*Contrasting inclusions*—20 percent

#### Setting

*Position on landscape:* Norod—concave areas on north-facing hillslopes; Horseflat—convex areas on north-facing hillslopes

*Parent material:* Norod—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Horseflat—colluvium and residuum derived from basalt, loess

*Slope range:* 45 to 60 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* Norod—12 to 15 inches with accumulation of snow; Horseflat—9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Norod

0 to 10 inches—brown cobbly loam (surface layer)

10 to 23 inches—brown very gravelly loam (upper part of subsoil)

23 to 28 inches—dark yellowish brown very cobbly loam (middle part of subsoil)

28 to 33 inches—brown, calcareous extremely cobbly loam (lower part of subsoil)

33 inches—basalt

#### Horseflat

0 to 4 inches—brown very cobbly loam (upper part of surface layer)

4 to 9 inches—brown very gravelly loam (lower part of surface layer)

9 to 16 inches—brown extremely gravelly loam (subsoil)

16 inches—basalt

### Soil Properties and Qualities

*Depth class:* Norod—moderately deep; Horseflat—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Norod—low; Horseflat—very low

*Restriction to rooting depth:* Norod—basalt at a depth of 25 to 40 inches; Horseflat—basalt at a depth of 14 to 20 inches

### Contrasting Inclusions

- Argabak soils
- Esquatzel and Weirman soils
- Ralock soils
- Rock outcrop

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Norod)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

*Brush control:* Severe—slope

**(Horseflat)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

### **114—Norod-Ralock-Horseflat complex, 15 to 30 percent slopes**

#### **Composition**

*Norod and similar soils—*35 percent

*Ralock and similar soils—*30 percent

*Horseflat and similar soils—*25 percent

*Contrasting inclusions—*10 percent

#### **Setting**

*Position on landscape:* Norod—slightly concave areas on north-facing hillslopes; Ralock—strongly concave areas on north-facing hillslopes; Horseflat—convex areas on north-facing hillslopes

*Parent material:* Norod—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Ralock—loess mixed with volcanic ash in the upper part, colluvium derived from basalt; Horseflat—colluvium and residuum derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* Norod and Ralock—12 to 15 inches with accumulation of snow; Horseflat—9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

##### **Norod**

0 to 10 inches—brown cobbly loam (surface layer)

10 to 23 inches—brown very gravelly loam (upper part of subsoil)

23 to 28 inches—dark yellowish brown very cobbly loam (middle part of subsoil)

28 to 33 inches—brown, calcareous extremely cobbly loam (lower part of subsoil)

33 inches—basalt

##### **Ralock**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 14 inches—brown silt loam (lower part of surface layer)

14 to 22 inches—brown silt loam (upper part of subsoil)

22 to 27 inches—yellowish brown silt loam (next part of subsoil)

27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)

36 to 49 inches—pale brown, calcareous gravelly loam (next part of subsoil)

49 to 60 inches—brown, calcareous gravelly loam (lower part of subsoil)

##### **Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)

4 to 9 inches—brown very gravelly loam (lower part of surface layer)

9 to 16 inches—brown extremely gravelly loam (subsoil)

16 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Norod—moderately deep; Ralock—very deep; Horseflat—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Norod—low; Ralock—very high; Horseflat—very low

*Potential rooting depth:* Ralock—more than 60 inches

*Restriction to rooting depth:* Norod—basalt at a depth of 25 to 40 inches; Horseflat—basalt at a depth of 14 to 20 inches

#### **Contrasting Inclusions**

- Argabak soils
- Esquatzel and Weirman soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Norod)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer

*Pipelines:* Moderate—rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Moderate—rock fragments in surface layer, slope  
*Brush control:* Severe—rock fragments in surface layer

**(Ralock)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—slope  
*Pipelines:* Moderate—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

**(Horseflat)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock  
*Seeding:* Severe—rock fragments in surface layer, droughty surface layer  
*Brush control:* Severe—rock fragments in surface layer

**115—Norod-Ralock-Horseflat complex, 30 to 45 percent slopes*****Composition***

*Norod and similar soils—*35 percent  
*Ralock and similar soils—*30 percent  
*Horseflat and similar soils—*25 percent  
*Contrasting inclusions—*10 percent

***Setting***

*Position on landscape:* Norod—slightly concave areas on north-facing hillslopes; Ralock—strongly concave areas on north-facing hillslopes; Horseflat—convex areas on north-facing hillslopes  
*Parent material:* Norod and Ralock—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Horseflat—colluvium and residuum derived from basalt, loess  
*Slope range:* 30 to 45 percent  
*Elevation:* 1,800 to 2,500 feet  
*Average annual precipitation:* Norod and Ralock—12 to 15 inches with accumulation of snow; Horseflat—9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

***Typical Profile*****Norod**

0 to 10 inches—brown cobbly loam (surface layer)  
 10 to 23 inches—brown very gravelly loam (upper part of subsoil)  
 23 to 28 inches—dark yellowish brown very cobbly loam (middle part of subsoil)  
 28 to 33 inches—brown, calcareous extremely cobbly loam (lower part of subsoil)  
 33 inches—basalt

**Ralock**

0 to 4 inches—brown silt loam (upper part of surface layer)  
 4 to 14 inches—brown silt loam (lower part of surface layer)  
 14 to 22 inches—brown silt loam (upper part of subsoil)  
 22 to 27 inches—yellowish brown silt loam (next part of subsoil)  
 27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)  
 36 to 49 inches—pale brown, calcareous gravelly loam (next part of subsoil)  
 49 to 60 inches—brown, calcareous gravelly loam (lower part of subsoil)

**Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)  
 4 to 9 inches—brown very gravelly loam (lower part of surface layer)  
 9 to 16 inches—brown extremely gravelly loam (subsoil)  
 16 inches—basalt

***Soil Properties and Qualities***

*Depth class:* Norod—moderately deep; Ralock—very deep; Horseflat—shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Norod—low; Ralock—very high; Horseflat—very low  
*Potential rooting depth:* Ralock—more than 60 inches  
*Restriction to rooting depth:* Norod—basalt at a depth of 25 to 40 inches; Horseflat—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Esquatzel and Weirman soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Norod)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer, slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

*Brush control:* Severe—slope

##### **(Ralock)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

##### **(Horseflat)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

### **116—Norod-Ralock-Horseflat complex, 45 to 60 percent slopes**

#### **Composition**

*Norod and similar soils—*35 percent

*Ralock and similar soils—*30 percent

*Horseflat and similar soils—*25 percent

*Contrasting inclusions—*10 percent

### **Setting**

*Position on landscape:* Norod—slightly concave areas on north-facing hillslopes; Ralock—strongly concave areas on north-facing hillslopes; Horseflat—convex areas on north-facing hillslopes

*Parent material:* Norod and Ralock—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Horseflat—colluvium and residuum derived from basalt, loess

*Slope range:* 45 to 60 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* Norod and Ralock—12 to 15 inches with accumulation of snow; Horseflat—9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Norod**

0 to 10 inches—brown cobbly loam (surface layer)

10 to 23 inches—brown very gravelly loam (upper part of subsoil)

23 to 28 inches—dark yellowish brown very cobbly loam (middle part of subsoil)

28 to 33 inches—brown, calcareous extremely cobbly loam (lower part of subsoil)

33 inches—basalt

#### **Ralock**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 14 inches—brown silt loam (lower part of surface layer)

14 to 22 inches—brown silt loam (upper part of subsoil)

22 to 27 inches—yellowish brown silt loam (next part of subsoil)

27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)

36 to 49 inches—pale brown, calcareous gravelly loam (next part of subsoil)

49 to 60 inches—brown, calcareous gravelly loam (lower part of subsoil)

#### **Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)

4 to 9 inches—brown very gravelly loam (lower part of surface layer)

9 to 16 inches—brown extremely gravelly loam (subsoil)  
16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Norod—moderately deep; Ralock—very deep; Horseflat—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Norod—low; Ralock—very high; Horseflat—very low

*Potential rooting depth:* Ralock—more than 60 inches

*Restriction to rooting depth:* Norod—basalt at a depth of 25 to 40 inches; Horseflat—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Esqatzel and Weirman soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Norod)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

*Brush control:* Severe—slope

##### **(Ralock)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

##### **(Horseflat)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

## **117—Norod-Rubble land complex, 30 to 75 percent slopes**

### **Composition**

*Norod and similar soils:*—50 percent

*Rubble land:*—30 percent

*Contrasting inclusions:*—20 percent

### **Setting**

*Position on landscape:* Norod—concave areas on north-facing hillslopes; Rubble land—hillslopes

*Parent material:* Norod—colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Rubble land—basalt

*Slope range:* 30 to 75 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Norod**

#### **Typical profile**

0 to 10 inches—brown cobbly loam (surface layer)

10 to 23 inches—brown very gravelly loam (upper part of subsoil)

23 to 28 inches—dark yellowish brown very cobbly loam (middle part of subsoil)

28 to 33 inches—brown, calcareous extremely cobbly loam (lower part of subsoil)

33 inches—basalt

#### **Soil properties and qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

### **Rubble Land**

Areas of stones and boulders

### **Contrasting Inclusions**

- Argabak soils
- Horseflat and Vantage soils
- Esqatzel and Weirman soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Norod)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

*Brush control:* Severe—slope

**118—Nosser-Levnik complex, 3 to 15 percent slopes****Composition**

*Nosser and similar soils—*50 percent

*Levnik and similar soils—*30 percent

*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Hillslopes, dissected plateaus

*Parent material:* Nosser—loess, slope alluvium, residuum derived from basalt; Levnik—residuum derived from basalt and slope alluvium with additions of loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,200 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

**Typical Profile****Nosser**

0 to 3 inches—brown gravelly loam (surface layer)  
3 to 10 inches—brown clay loam (upper part of subsoil)

10 to 18 inches—brown gravelly clay loam (middle part of subsoil)

18 to 22 inches—brown, calcareous extremely gravelly clay loam (lower part of subsoil)

22 inches—basalt

**Levnik**

0 to 4 inches—brown very gravelly loam (surface layer)

4 to 8 inches—brown clay loam (upper part of subsoil)

8 to 13 inches—brown gravelly clay (middle part of subsoil)

13 to 16 inches—brown extremely gravelly clay (lower part of subsoil)

16 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Nosser—moderately deep; Levnik—shallow

*Drainage class:* Well drained

*Permeability:* Nosser—moderately slow; Levnik—slow

*Available water capacity:* Low

*Restriction to rooting depth:* Nosser—basalt at a depth of 20 to 40 inches; Levnik—basalt at a depth of 12 to 20 inches

**Contrasting Inclusions**

- Nevo soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Nosser)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

**(Levnik)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer

*Brush control:* Slight

**119—Nosser-Levnik complex, 15 to 30 percent slopes****Composition**

*Nosser and similar soils—*50 percent

*Levnik and similar soils—*30 percent

*Contrasting inclusions—*20 percent

### Setting

*Position on landscape:* Hillslopes, dissected plateaus

*Parent material:* Nosser—loess, slope alluvium, residuum derived from basalt; Levnik—residuum derived from basalt and slope alluvium with additions of loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,200 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

### Typical Profile

#### Nosser

0 to 3 inches—brown gravelly loam (surface layer)

3 to 10 inches—brown clay loam (upper part of subsoil)

10 to 18 inches—brown gravelly clay loam (middle part of subsoil)

18 to 22 inches—brown, calcareous extremely gravelly clay loam (lower part of subsoil)

22 inches—basalt

#### Levnik

0 to 4 inches—brown very gravelly loam (surface layer)

4 to 8 inches—brown clay loam (upper part of subsoil)

8 to 13 inches—brown gravelly clay (middle part of subsoil)

13 to 16 inches—brown extremely gravelly clay (lower part of subsoil)

16 inches—basalt

### Soil Properties and Qualities

*Depth class:* Nosser—moderately deep; Levnik—shallow

*Drainage class:* Well drained

*Permeability:* Nosser—moderately slow; Levnik—slow

*Available water capacity:* Moderate

*Restriction to rooting depth:* Nosser—basalt at a depth of 20 to 40 inches; Levnik—basalt at a depth of 12 to 20 inches

### Contrasting Inclusions

- Nevo soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

### Development limitations

#### (Nosser)

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to bedrock, slope

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

#### (Levnik)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer

*Brush control:* Moderate—slope

## 120—Palerf-Ralock-Vantage complex, 15 to 30 percent slopes

### Composition

*Palerf and similar soils—*35 percent

*Ralock and similar soils—*30 percent

*Vantage and similar soils—*25 percent

*Contrasting inclusions—*10 percent

### Setting

*Position on landscape:* Palerf—slightly concave areas on north-facing hillslopes; Ralock—strongly concave areas on north-facing hillslopes; Vantage—convex areas on north-facing hillslopes

*Parent material:* Palerf—residuum and colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Ralock—loess mixed with volcanic ash in the upper part, colluvium derived from basalt; Vantage—residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* Palerf and Ralock—12 to 15 inches with accumulation of snow;

Vantage—9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Palerf

0 to 9 inches—brown gravelly loam (surface layer)

9 to 14 inches—brown very gravelly clay loam (upper part of subsoil)

14 to 27 inches—brown very gravelly clay (middle part of subsoil)

27 to 35 inches—brown, calcareous extremely gravelly clay (lower part of subsoil)  
35 inches—basalt

### **Ralock**

0 to 4 inches—brown silt loam (upper part of surface layer)  
4 to 14 inches—brown silt loam (lower part of surface layer)  
14 to 22 inches—brown silt loam (upper part of subsoil)  
22 to 27 inches—yellowish brown silt loam (next part of subsoil)  
27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)  
36 to 49 inches—pale brown, calcareous gravelly loam (next part of subsoil)  
49 to 60 inches—brown, calcareous gravelly loam (lower part of subsoil)

### **Vantage**

0 to 3 inches—brown very cobbly loam (surface layer)  
3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)  
8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
17 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Palerf—moderately deep; Ralock—very deep; Vantage—shallow

*Drainage class:* Well drained

*Permeability:* Palerf and Vantage—slow; Ralock—moderately slow

*Available water capacity:* Palerf—moderate; Ralock—very high; Vantage—very low

*Potential rooting depth:* Ralock—more than 60 inches

*Restriction to rooting depth:* Palerf—basalt at a depth of 25 to 40 inches; Vantage—basalt at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat (fig. 2)

### **Livestock Grazing**

### **Development limitations**

#### **(Palerf)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer

*Pipelines:* Moderate—slope, depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

#### **(Ralock)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

#### **(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **121—Palerf-Vantage complex, 15 to 30 percent slopes**

### **Composition**

*Palerf and similar soils—*45 percent

*Vantage and similar soils—*30 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Palerf—concave areas on north-facing hillslopes; Vantage—convex areas on north-facing hillslopes

*Parent material:* Palerf—residuum and colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Vantage—residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* Palerf—12 to 15 inches with accumulation of snow; Vantage—9 to 12 inches



Figure 2.—Typical area of Ralock silt loam in an area of Palerf-Ralock-Vantage complex, 15 to 30 percent slopes. This area is used for livestock grazing and wildlife habitat.

*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Palerf**

0 to 9 inches—brown gravelly loam (surface layer)  
 9 to 14 inches—brown very gravelly clay loam (upper part of subsoil)  
 14 to 27 inches—brown very gravelly clay (middle part of subsoil)  
 27 to 35 inches—brown, calcareous extremely gravelly clay (lower part of subsoil)  
 35 inches—basalt

#### **Vantage**

0 to 3 inches—brown very cobbly loam (surface layer)  
 3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)

8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 17 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Palerf—moderately deep; Vantage—shallow  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Palerf—moderate; Vantage—very low  
*Restriction to rooting depth:* Palerf—basalt at a depth of 25 to 45 inches; Vantage—basalt at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Palerf)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer

*Pipelines:* Moderate—slope, depth to bedrock

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

##### **(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

### **122—Palexerolls-Patron complex, 15 to 30 percent slopes**

#### **Composition**

*Palexerolls and similar soils—*50 percent

*Patron and similar soils—*30 percent

*Contrasting inclusions—*20 percent

#### **Setting**

*Position on landscape:* Palexerolls—footslopes, hillslopes; Patron—strongly concave areas on north-facing hillslopes

*Parent material:* Palexerolls—loess, residuum, slope alluvium; Patron—residuum and colluvium derived from basalt, loess mixed with volcanic ash in the upper part

*Slope range:* 15 to 30 percent

*Elevation:* 2,600 to 3,000 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

#### **Palexerolls**

#### **Representative profile**

0 to 5 inches—dark grayish brown gravelly clay loam (surface layer)

5 to 12 inches—brown gravelly clay (upper part of subsoil)

12 to 21 inches—brown very gravelly clay (middle part of subsoil)

21 to 35 inches—light brownish gray very gravelly clay loam (lower part of subsoil)

35 inches—basalt

#### **Soil properties and qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

#### **Patron**

#### **Typical profile**

0 to 15 inches—brown silt loam (surface layer)

15 to 20 inches—brown gravelly clay loam (upper part of subsoil)

20 to 44 inches—brown gravelly clay loam (middle part of subsoil)

44 to 52 inches—light brownish gray, calcareous gravelly clay loam (lower part of subsoil)

52 inches—basalt

#### **Soil properties and qualities**

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very high

*Restriction to rooting depth:* Basalt at a depth of 40 to 60 inches

#### **Contrasting Inclusions**

- Camaspatch soils, thin
- Rock outcrop
- Argabak soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Palexerolls)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

**(Patron)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

**123—Patron-Camaspatch complex, 15 to 30 percent slopes****Composition**

*Patron and similar soils—*55 percent

*Camaspach and similar soils—*25 percent

*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Patron—strongly concave areas on north-facing hillslopes; Camaspach—convex areas on north-facing hillslopes

*Parent material:* Patron—slope alluvium, loess mixed with ash in the upper part, interbedded sediment; Camaspach—residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,900 to 3,000 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 47 to 49 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

**Typical Profile****Patron**

0 to 15 inches—dark grayish brown loam (surface layer)

15 to 26 inches—dark brown gravelly clay loam (upper part of subsoil)

26 to 30 inches—brown clay (middle part of subsoil)

30 to 60 inches—brown gravelly clay loam (lower part of subsoil)

**Camaspach**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)

12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)

19 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Patron—very deep; Camaspach—shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Patron—high; Camaspach—very low

*Potential rooting depth:* Patron—more than 60 inches

*Restriction to rooting depth:* Camaspach—basalt at a depth of 12 to 20 inches

**Contrasting Inclusions**

- Windry soils
- Blint soils
- Wockum soils
- Lainand soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Patron)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope, rock fragments in surface layer

*Pipelines:* Moderate—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope

*Seeding:* Severe—droughty surface layer

*Brush control:* Moderate—slope, rock fragments in surface layer

**(Camaspach)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

**124—Prosser silt loam, 10 to 15 percent slopes****Composition**

*Prosser and similar soils—*80 percent

*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Benches, hillslopes

*Parent material:* Loess, some glaciofluvial sediment

*Slope range:* 10 to 15 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

**Typical Profile**

0 to 4 inches—yellowish brown silt loam (surface layer)

4 to 20 inches—yellowish brown silt loam (upper part of subsoil)

20 to 26 inches—very pale brown, calcareous silt loam (lower part of subsoil)

26 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Nevo soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

**125—Prosser-Nevo complex, 3 to 15 percent slopes****Composition**

*Prosser and similar soils—*50 percent

*Nevo and similar soils—*30 percent

*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Benches, hillslopes

*Parent material:* Prosser—loess, some glaciofluvial sediment; Nevo—loess, residuum derived from basalt

*Slope range:* 3 to 15 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

**Typical Profile****Prosser**

0 to 4 inches—yellowish brown silt loam (surface layer)

4 to 20 inches—yellowish brown silt loam (upper part of subsoil)

20 to 26 inches—very pale brown, calcareous silt loam (lower part of subsoil)

26 inches—basalt

**Nevo**

0 to 2 inches—brown very cobbly loam (surface layer)

2 to 8 inches—brown very gravelly clay loam (subsoil)

8 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Prosser—moderately deep; Nevo—very shallow

*Drainage class:* Well drained

*Permeability:* Prosser—moderate; Nevo—moderately slow

*Available water capacity:* Prosser—high; Nevo—very low

*Restriction to rooting depth:* Prosser—basalt at a depth of 20 to 40 inches; Nevo—basalt at a depth of 5 to 10 inches

**Contrasting Inclusions**

- Fortyday soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Prosser)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

**(Nevo)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **126—Ralock silt loam, 15 to 30 percent slopes**

### **Composition**

*Ralock and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Concave, north-facing areas on hillslopes

*Parent material:* Loess mixed with volcanic ash in the upper part, colluvium derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 14 inches—brown silt loam (lower part of surface layer)

14 to 22 inches—brown silt loam (upper part of subsoil)

22 to 27 inches—yellowish brown silt loam (next part of subsoil)

27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)

36 to 49 inches—pale brown, calcareous gravelly loam (next part of subsoil)

49 to 60 inches—brown, calcareous gravelly loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Norod and Palerf soils
- Selah soils
- Rock outcrop
- Vantage and Horseflat soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

## **127—Ralock silt loam, 30 to 45 percent slopes**

### **Composition**

*Ralock and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* North-facing areas on hillslopes

*Parent material:* Loess mixed with volcanic ash in the upper part, colluvium derived from basalt

*Slope range:* 30 to 45 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 14 inches—brown silt loam (lower part of surface layer)

14 to 22 inches—brown silt loam (upper part of subsoil)

22 to 27 inches—yellowish brown silt loam (next part of subsoil)

27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)

36 to 49 inches—pale brown, calcareous gravelly loam  
(next part of subsoil)

49 to 60 inches—brown, calcareous gravelly loam  
(lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Palerf and Norod soils
- Selah soils
- Rock outcrop
- Vantage and Horseflat soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

## **128—Ralock-Horseflat complex, 15 to 30 percent slopes**

### **Composition**

*Ralock and similar soils*—45 percent

*Horseflat and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Ralock—concave areas on north-facing hillslopes; Horseflat—convex areas on north-facing hillslopes

*Parent material:* Ralock—loess mixed with volcanic ash in the upper part, colluvium derived from basalt; Horseflat—colluvium and residuum derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* Ralock—12 to 15 inches with accumulation of snow; Horseflat—9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Ralock**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 14 inches—brown silt loam (lower part of surface layer)

14 to 22 inches—brown silt loam (upper part of subsoil)

22 to 27 inches—yellowish brown silt loam (next part of subsoil)

27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)

36 to 49 inches—pale brown, calcareous gravelly loam (next part of subsoil)

49 to 60 inches—brown, calcareous gravelly loam (lower part of subsoil)

#### **Horseflat**

0 to 4 inches—brown very cobbly loam (upper part of surface layer)

4 to 9 inches—brown very gravelly loam (lower part of surface layer)

9 to 16 inches—brown extremely gravelly loam (subsoil)

16 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Ralock—very deep; Horseflat—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Ralock—very high; Horseflat—very low

*Potential rooting depth:* Ralock—more than 60 inches

*Restriction to rooting depth:* Horseflat—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Norod and Palerf soils
- Argabak soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Ralock)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

### **(Horseflat)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **129—Ralock-Palerf complex, 15 to 30 percent slopes**

### **Composition**

*Ralock and similar soils*—45 percent

*Palerf and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Ralock—concave areas on north-facing hillslopes; Palerf—slightly convex areas on north-facing hillslopes

*Parent material:* Ralock—loess mixed with volcanic ash in the upper part, colluvium derived from basalt; Palerf—residuum and colluvium derived from basalt, loess mixed with volcanic ash in the upper part

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Ralock**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 14 inches—brown silt loam (lower part of surface layer)

14 to 22 inches—brown silt loam (upper part of subsoil)

22 to 27 inches—yellowish brown silt loam (next part of subsoil)

27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)

36 to 49 inches—pale brown, calcareous gravelly loam (next part of subsoil)

49 to 60 inches—brown, calcareous gravelly loam (lower part of subsoil)

#### **Palerf**

0 to 9 inches—brown gravelly loam (surface layer)

9 to 14 inches—brown very gravelly clay loam (upper part of subsoil)

14 to 27 inches—brown very gravelly clay (middle part of subsoil)

27 to 35 inches—brown, calcareous extremely gravelly clay (lower part of subsoil)

35 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Ralock—very deep; Palerf—moderately deep

*Drainage class:* Well drained

*Permeability:* Ralock—moderately slow; Palerf—slow

*Available water capacity:* Ralock—very high; Palerf—moderate

*Potential rooting depth:* Ralock—more than 60 inches

*Restriction to rooting depth:* Palerf—basalt at a depth of 25 to 40 inches

### **Contrasting Inclusions**

- Vantage and Horseflat soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development Limitations**

#### **(Ralock)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

#### **(Palerf)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer

*Pipelines:* Moderate—slope, depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

### **130—Ralock-Palerf complex, 30 to 45 percent slopes**

#### **Composition**

*Ralock and similar soils—*45 percent

*Palerf and similar soils—*35 percent

*Contrasting inclusions—*20 percent

#### **Setting**

*Position on landscape:* Ralock—concave areas on north-facing hillslopes; Palerf—slightly convex areas on north-facing hillslopes

*Parent material:* Ralock—loess mixed with volcanic ash in the upper part, colluvium derived from basalt; Palerf—residuum and colluvium derived from basalt, loess mixed with volcanic ash in the upper part

*Slope range:* 30 to 45 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

##### **Ralock**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 14 inches—brown silt loam (lower part of surface layer)

14 to 22 inches—brown silt loam (upper part of subsoil)

22 to 27 inches—yellowish brown silt loam (next part of subsoil)

27 to 36 inches—yellowish brown, calcareous gravelly loam (next part of subsoil)

36 to 49 inches—pale brown, calcareous gravelly loam (next part of subsoil)

49 to 60 inches—brown, calcareous gravelly loam (lower part of subsoil)

##### **Palerf**

0 to 9 inches—brown gravelly loam (surface layer)

9 to 14 inches—brown very gravelly clay loam (upper part of subsoil)

14 to 27 inches—brown very gravelly clay (middle part of subsoil)

27 to 35 inches—brown, calcareous extremely gravelly clay (lower part of subsoil)

35 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Ralock—very deep; Palerf—moderately deep

*Drainage class:* Well drained

*Permeability:* Ralock—moderately slow; Palerf—slow

*Available water capacity:* Ralock—very high; Palerf—moderate

*Potential rooting depth:* Ralock—more than 60 inches

*Restriction to rooting depth:* Palerf—basalt at a depth of 25 to 40 inches

#### **Contrasting Inclusions**

- Vantage and Horseflat soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Ralock)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

##### **(Palerf)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer, slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

### **131—Rock outcrop**

#### **Composition**

*Rock outcrop—*75 percent

*Contrasting inclusions—*25 percent

#### **Setting**

*Position on landscape:* Hillslopes

*Parent material:* Basalt

*Slope range:* 60 to 120 percent

*Elevation:* 500 to 2,900 feet

**Description of Rock Outcrop**

Exposed areas of basalt

**Contrasting Inclusions**

- Rubble land
- Kiona soils

**Major Use**

Wildlife habitat

**132—Rollinger silt loam, 5 to 10 percent slopes****Composition**

*Rollinger and similar soils*—75 percent

*Contrasting inclusions*—25 percent

**Setting**

*Position on landscape*: North-facing piedmont slopes and toeslopes

*Parent material*: Loess mixed with volcanic ash in the upper part, slope alluvium

*Slope range*: 5 to 10 percent

*Elevation*: 1,800 to 2,900 feet

*Average annual precipitation*: 12 to 15 inches with accumulation of snow

*Average annual air temperature*: 48 to 50 degrees F

*Frost-free season (32 degrees F)*: 130 to 170 days

**Typical Profile**

- 0 to 6 inches—dark grayish brown silt loam (upper part of surface layer)
- 6 to 11 inches—brown silt loam (lower part of surface layer)
- 11 to 27 inches—brown silty clay loam (upper part of subsoil)
- 27 to 40 inches—brown silt loam (next part of subsoil)
- 40 to 48 inches—brown silty clay loam (next part of subsoil)
- 48 to 51 inches—pale brown silt loam (next part of subsoil)
- 51 to 60 inches—brown sandy loam (lower part of subsoil)

**Soil Properties and Qualities**

*Depth class*: Very deep

*Drainage class*: Well drained

*Permeability*: Moderately slow

*Available water capacity*: Very high

*Potential rooting depth*: More than 60 inches

**Contrasting Inclusions**

- Zen soils
- Selah soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel)*: High

*Corrosivity (concrete)*: Low

*Fences*: Slight

*Pipelines*: Slight

*Livestock ponds*: Moderate—slope

*Seeding*: Slight

*Brush control*: Slight

**133—Rollinger silt loam, 10 to 15 percent slopes****Composition**

*Rollinger and similar soils*—75 percent

*Contrasting inclusions*—25 percent

**Setting**

*Position on landscape*: North-facing piedmont slopes and toeslopes

*Parent material*: Loess mixed with volcanic ash in the upper part, slope alluvium

*Slope range*: 10 to 15 percent

*Elevation*: 1,800 to 2,900 feet

*Average annual precipitation*: 12 to 15 inches with accumulation of snow

*Average annual air temperature*: 48 to 50 degrees F

*Frost-free season (32 degrees F)*: 130 to 170 days

**Typical Profile**

- 0 to 6 inches—dark grayish brown silt loam (upper part of surface layer)
- 6 to 11 inches—brown silt loam (lower part of surface layer)
- 11 to 27 inches—brown silty clay loam (upper part of subsoil)
- 27 to 40 inches—brown silt loam (next part of subsoil)
- 40 to 48 inches—brown silty clay loam (next part of subsoil)
- 48 to 51 inches—pale brown silt loam (next part of subsoil)

51 to 60 inches—brown sandy loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Zen soils
- Selah soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—slope

*Seeding:* Slight

*Brush control:* Slight

## **134—Rollinger silt loam, 15 to 30 percent slopes**

### **Composition**

*Rollinger and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* North-facing hillslopes, piedmont slopes, and toeslopes

*Parent material:* Loess mixed with volcanic ash in the upper part, slope alluvium

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 6 inches—dark grayish brown silt loam (upper part of surface layer)

6 to 11 inches—brown silt loam (lower part of surface layer)

11 to 27 inches—brown silty clay loam (upper part of subsoil)

27 to 40 inches—brown silt loam (next part of subsoil)

40 to 48 inches—brown silty clay loam (next part of subsoil)

48 to 51 inches—pale brown silt loam (next part of subsoil)

51 to 60 inches—brown sandy loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Zen soils
- Selah soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

## **135—Rollinger silt loam, 30 to 45 percent slopes**

### **Composition**

*Rollinger and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* North-facing hillslopes and piedmont slopes

*Parent material:* Loess mixed with volcanic ash in the upper part, slope alluvium

*Slope range:* 30 to 45 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 6 inches—dark grayish brown silt loam (upper part of surface layer)  
 6 to 12 inches—brown silt loam (lower part of surface layer)  
 12 to 28 inches—brown silty clay loam (upper part of subsoil)  
 28 to 42 inches—brown silt loam (next part of subsoil)  
 42 to 52 inches—brown silty clay loam (next part of subsoil)  
 52 to 60 inches—pale brown silt loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Very high  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Zen, Norod, and Palerf soils
- Horseflat and Vantage soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—slope  
*Pipelines:* Severe—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Severe—slope  
*Brush control:* Severe—slope

## **136—Rollinger silt loam, 45 to 60 percent slopes**

### **Composition**

*Rollinger and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* North-facing hillslopes, piedmont slopes, and toeslopes  
*Parent material:* Loess mixed with volcanic ash in the upper part, slope alluvium  
*Slope range:* 45 to 60 percent

*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 12 to 15 inches with accumulation of snow

*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 6 inches—dark grayish brown silt loam (upper part of surface layer)  
 6 to 18 inches—brown silt loam (lower part of surface layer)  
 18 to 29 inches—brown silty clay loam (upper part of subsoil)  
 29 to 60 inches—pale brown silt loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Very high  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Zen, Norod, and Palerf soils
- Horseflat and Vantage soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—slope  
*Pipelines:* Severe—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Severe—slope  
*Brush control:* Severe—slope

## **137—Rubble land-Rock outcrop complex, 60 to 120 percent slopes**

### **Composition**

*Rubble land—*60 percent  
*Rock outcrop—*20 percent  
*Contrasting inclusions—*20 percent

### **Setting**

*Position on landscape:* Rubble land—below areas of Rock outcrop; Rock outcrop—convex areas  
*Parent material:* Rubble land and Rock outcrop—basalt

*Slope range:* 60 to 120 percent  
*Elevation:* 500 to 4,200 feet  
*Average annual precipitation:* 6 to 15 inches  
*Average annual air temperature:* 42 to 51 degrees F  
*Frost-free season (32 degrees F):* 90 to 195 days

### **Rubble Land**

Areas of stones and boulders

### **Rock Outcrop**

Exposures of barren basalt

### **Contrasting Inclusions**

- Kiona soils

### **Major Use**

Wildlife habitat

## **138—Rubble land-Rock outcrop-Kiona complex, 60 to 120 percent slopes**

### **Composition**

*Rubble land*—40 percent  
*Rock outcrop*—25 percent  
*Kiona and similar soils*—20 percent  
*Contrasting inclusions*—15 percent

### **Setting**

*Position on landscape:* Rubble land—below areas of Rock outcrop; Rock outcrop—convex areas; Kiona—north-facing hillslopes

*Parent material:* Rubble land and Rock outcrop—basalt; Kiona—colluvium derived from basalt, loess

*Slope range:* 60 to 120 percent  
*Elevation:* 500 to 2,000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Rubble Land**

Areas of stones and boulders

### **Rock Outcrop**

Exposures of barren basalt

### **Kiona**

### **Typical profile**

0 to 4 inches—brown very stony loam (surface layer)  
 4 to 21 inches—yellowish brown very gravelly loam (upper part of subsoil)  
 21 to 48 inches—pale brown, calcareous extremely gravelly loam (middle part of subsoil)

48 to 60 inches—light yellowish brown, calcareous extremely gravelly loam (lower part of subsoil)

### **Soil properties and qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Moderate  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Nevo soils
- Disage and Fortyday soils

### **Major Use**

Wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Kiona)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—slope, rock fragments in surface layer  
*Pipelines:* Severe—slope, rock fragments in surface layer  
*Livestock ponds:* Severe—slope  
*Seeding:* Severe—slope, rock fragments in surface layer, stones on surface  
*Brush control:* Severe—slope, rock fragments in surface layer, Rock outcrop, depth to hardpan, stones on surface

## **139—Sagehill-Burbank-Malaga complex, 30 to 60 percent slopes**

### **Composition**

*Sagehill and similar soils*—35 percent  
*Burbank and similar soils*—30 percent  
*Malaga and similar soils*—25 percent  
*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Terrace escarpments  
*Parent material:* Sagehill—lacustrine deposits with a mantle of loess; Burbank and Malaga—glacial outwash

*Slope range:* 30 to 60 percent  
*Elevation:* 600 to 1,300 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### Typical Profile

#### Sagehill

0 to 4 inches—brown fine sandy loam (surface layer)  
 4 to 23 inches—yellowish brown fine sandy loam  
 (upper part of subsoil)  
 23 to 35 inches—yellowish brown fine sandy loam  
 (next part of subsoil)  
 35 to 50 inches—light brownish gray, calcareous fine  
 sandy loam (next part of subsoil)  
 50 to 60 inches—light yellowish brown, calcareous fine  
 sandy loam (lower part of subsoil)

#### Burbank

0 to 5 inches—brown very gravelly loamy sand  
 (surface layer)  
 5 to 17 inches—brown very gravelly loamy sand  
 (upper part of subsoil)  
 17 to 36 inches—light brownish gray, calcareous very  
 gravelly sand (lower part of subsoil)  
 36 to 60 inches—dark gray, calcareous extremely  
 gravelly coarse sand (substratum)

#### Malaga

0 to 4 inches—brown gravelly sandy loam (upper part  
 of surface layer)  
 4 to 14 inches—brown gravelly sandy loam (lower part  
 of surface layer)  
 14 to 22 inches—light yellowish brown very gravelly  
 fine sandy loam (subsoil)  
 22 to 60 inches—multicolored extremely gravelly  
 coarse sand (substratum)

#### Soil Properties and Qualities

*Depth class:* Very deep

*Drainage class:* Sagehill—well drained; Burbank—  
 excessively drained; Malaga—somewhat  
 excessively drained

*Permeability:* Sagehill—moderate; Burbank—rapid  
 over very rapid; Malaga—moderately rapid over  
 very rapid

*Available water capacity:* Sagehill—very high;  
 Burbank—very low; Malaga—low

*Potential rooting depth:* More than 60 inches

#### Contrasting Inclusions

- Clenage soils
- Esquatzel and Weirman soils
- Aquolls
- Disage soils
- Rock outcrop

#### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

#### 140—Scoon loam, 5 to 10 percent slopes

#### Composition

*Scoon and similar soils—*75 percent

*Contrasting inclusions—*25 percent

#### Setting

*Position on landscape:* Alluvial fans

*Parent material:* Loess

*Slope range:* 5 to 10 percent

*Elevation:* 800 to 1,800 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51  
 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### Typical Profile

0 to 3 inches—pale brown loam (surface layer)  
 3 to 14 inches—light yellowish brown silt loam  
 (upper part of subsoil)  
 14 to 17 inches—light brownish gray, calcareous  
 gravelly silt loam (lower part of subsoil)  
 17 to 27 inches—indurated, lime- and silica-cemented  
 hardpan  
 27 to 60 inches—stratified indurated material with  
 lenses of very gravelly sandy loam

#### Soil Properties and Qualities

*Depth class:* Shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Moderate above the hardpan

*Available water capacity:* Low

*Restriction to rooting depth:* Hardpan at a depth of  
 10 to 20 inches

#### Contrasting Inclusions

- Drysel soils

#### Major Uses

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to hardpan  
*Pipelines:* Severe—depth to hardpan  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Severe—depth to hardpan  
*Brush control:* Slight

#### **141—Selah silt loam, 0 to 2 percent slopes**

##### **Composition**

*Selah and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

##### **Setting**

*Position on landscape:* Alluvial fans  
*Parent material:* Loess, alluvium  
*Slope range:* 0 to 2 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

##### **Typical Profile**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 14 inches—yellowish brown silt loam (upper part of subsoil)  
 14 to 20 inches—yellowish brown silty clay loam (middle part of subsoil)  
 20 to 27 inches—brown, calcareous clay loam (lower part of subsoil)  
 27 to 37 inches—indurated, lime- and silica-cemented hardpan  
 37 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

##### **Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderately slow above the hardpan  
*Available water capacity:* High  
*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

##### **Contrasting Inclusions**

- Benwy soils
- Gorst and Gorskel soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat (fig. 3)

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—depth to hardpan  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Slight  
*Brush control:* Slight

#### **142—Selah silt loam, 2 to 5 percent slopes**

##### **Composition**

*Selah and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

##### **Setting**

*Position on landscape:* Alluvial fans  
*Parent material:* Loess, alluvium  
*Slope range:* 2 to 5 percent  
*Elevation:* 1,800 to 2,500 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

##### **Typical Profile**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 14 inches—yellowish brown silt loam (upper part of subsoil)  
 14 to 20 inches—yellowish brown silty clay loam (middle part of subsoil)  
 20 to 27 inches—brown, calcareous clay loam (lower part of subsoil)  
 27 to 37 inches—indurated, lime- and silica-cemented hardpan  
 37 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

##### **Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderately slow above the hardpan  
*Available water capacity:* High  
*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches



Figure 3.—Typical area of Selah silt loam, 0 to 2 percent slopes, used for livestock grazing and wildlife habitat.

### ***Contrasting Inclusions***

- Benwy soils
- Gorst and Gorskel soils

### ***Major Uses***

Military training, livestock grazing, wildlife habitat

### ***Livestock Grazing***

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—depth to hardpan  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Slight  
*Brush control:* Slight

### **143—Selah silt loam, 5 to 10 percent slopes**

#### ***Composition***

*Selah and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

#### ***Setting***

*Position on landscape:* Alluvial fans  
*Parent material:* Loess, alluvium  
*Slope range:* 5 to 10 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 14 inches—yellowish brown silt loam (upper part of subsoil)  
 14 to 20 inches—yellowish brown silty clay loam (middle part of subsoil)  
 20 to 27 inches—brown, calcareous clay loam (lower part of subsoil)  
 27 to 37 inches—indurated, lime- and silica-cemented hardpan  
 37 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

**Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderately slow above the hardpan  
*Available water capacity:* High  
*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Benwy soils
- Gorst and Gorskel soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—depth to hardpan  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Slight  
*Brush control:* Slight

**144—Selah silt loam, 10 to 15 percent slopes****Composition**

*Selah and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Alluvial fans  
*Parent material:* Loess, alluvium  
*Slope range:* 10 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 14 inches—yellowish brown silt loam (upper part of subsoil)  
 14 to 20 inches—yellowish brown silty clay loam (middle part of subsoil)  
 20 to 27 inches—brown, calcareous clay loam (lower part of subsoil)  
 27 to 37 inches—indurated, lime- and silica-cemented hardpan  
 37 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

**Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderately slow above the hardpan  
*Available water capacity:* High  
*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Benwy soils
- Gorst and Gorskel soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—depth to hardpan  
*Livestock ponds:* Severe—depth to hardpan  
*Seeding:* Slight  
*Brush control:* Slight

**145—Selah silt loam, 15 to 30 percent slopes****Composition**

*Selah and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* South-facing old alluvial fans  
*Parent material:* Loess, alluvium  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 14 inches—yellowish brown silt loam (upper part of subsoil)  
 14 to 20 inches—yellowish brown silty clay loam (middle part of subsoil)  
 20 to 27 inches—brown, calcareous clay loam (lower part of subsoil)  
 27 to 37 inches—indurated, lime- and silica-cemented hardpan  
 37 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Moderately deep to a hardpan  
*Drainage class:* Well drained  
*Permeability:* Moderately slow above the hardpan  
*Available water capacity:* High  
*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Benwy soils
- Gorst and Gorskel soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—depth to hardpan, slope  
*Livestock ponds:* Severe—depth to hardpan, slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

## **146—Sohappy-Fortyday complex, 3 to 15 percent slopes**

### **Composition**

*Sohappy and similar soils*—50 percent

*Fortyday and similar soils*—35 percent  
*Contrasting inclusions*—15 percent

### **Setting**

*Position on landscape:* Hillslopes  
*Parent material:* Sohappy—loess over colluvium and alluvium; Fortyday—residuum and colluvium derived from basalt with small additions of loess  
*Slope range:* 3 to 15 percent  
*Elevation:* 500 to 2,000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

#### **Sohappy**

0 to 4 inches—yellowish brown silt loam (surface layer)  
 4 to 17 inches—pale brown silt loam (upper part of subsoil)  
 17 to 25 inches—light brownish gray gravelly silt loam (next part of subsoil)  
 25 to 41 inches—light brownish gray, calcareous cobbly loam (next part of subsoil)  
 41 to 47 inches—light brownish gray, calcareous extremely cobbly clay loam (lower part of subsoil)  
 47 inches—basalt

#### **Fortyday**

0 to 4 inches—yellowish brown cobbly loam (upper part of surface layer)  
 4 to 9 inches—yellowish brown very gravelly loam (lower part of surface layer)  
 9 to 13 inches—yellowish brown very gravelly loam (upper part of subsoil)  
 13 to 17 inches—yellowish brown extremely cobbly loam (lower part of subsoil)  
 17 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Sohappy—deep; Fortyday—shallow  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Sohappy—very high; Fortyday—very low  
*Restriction to rooting depth:* Sohappy—basalt at a depth of 40 to 60 inches; Fortyday—basalt at a depth of 14 to 20 inches

### **Contrasting Inclusions**

- Drino soils
- Weirman and Esquatzel soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Sohappy)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

##### **(Fortyday)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer

*Brush control:* Moderate—rock fragments in surface layer

### **147—Sohappy-Fortyday complex, 15 to 30 percent slopes**

#### **Composition**

*Sohappy and similar soils—*50 percent

*Fortyday and similar soils—*35 percent

*Contrasting inclusions—*15 percent

#### **Setting**

*Position on landscape:* North-facing hillslopes

*Parent material:* Sohappy—loess over colluvium and alluvium; Fortyday—residuum and colluvium derived from basalt with small additions of loess

*Slope range:* 15 to 30 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

##### **Sohappy**

0 to 4 inches—yellowish brown silt loam (surface layer)

4 to 17 inches—pale brown silt loam (upper part of subsoil)

17 to 25 inches—light brownish gray gravelly silt loam (next part of subsoil)

25 to 41 inches—light brownish gray, calcareous cobbly loam (next part of subsoil)

41 to 47 inches—light brownish gray, calcareous extremely cobbly clay loam (lower part of subsoil)

47 inches—basalt

##### **Fortyday**

0 to 4 inches—yellowish brown cobbly loam (upper part of surface layer)

4 to 9 inches—yellowish brown very gravelly loam (lower part of surface layer)

9 to 13 inches—yellowish brown very gravelly loam (upper part of subsoil)

13 to 17 inches—yellowish brown extremely cobbly loam (lower part of subsoil)

17 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Sohappy—deep; Fortyday—shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Sohappy—very high; Fortyday—very low

*Restriction to rooting depth:* Sohappy—basalt at a depth of 40 to 60 inches; Fortyday—basalt at a depth of 14 to 20 inches

#### **Contrasting Inclusions**

- Drino Soils
- Rock outcrop
- Weirman and Esquatzel soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Sohappy)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight—slope

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

##### **(Fortyday)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer  
*Brush control:* Moderate—rock fragments in surface layer

### **148—Sohappy-Fortyday complex, 30 to 45 percent slopes**

#### ***Composition***

*Sohappy and similar soils*—40 percent  
*Fortyday and similar soils*—35 percent  
*Contrasting inclusions*—25 percent

#### ***Setting***

*Position on landscape:* North-facing hillslopes  
*Parent material:* Sohappy—loess over colluvium and alluvium; Fortyday—residuum and colluvium derived from basalt with small additions of loess  
*Slope range:* 30 to 45 percent  
*Elevation:* 500 to 2,000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

#### ***Typical Profile***

##### **Sohappy**

0 to 4 inches—yellowish brown silt loam (surface layer)  
 4 to 17 inches—pale brown silt loam (upper part of subsoil)  
 17 to 25 inches—light brownish gray gravelly silt loam (next part of subsoil)  
 25 to 41 inches—light brownish gray, calcareous cobbly loam (next part of subsoil)  
 41 to 47 inches—light brownish gray, calcareous extremely cobbly clay loam (lower part of subsoil)  
 47 inches—basalt

##### **Fortyday**

0 to 4 inches—yellowish brown cobbly loam (upper part of surface layer)  
 4 to 9 inches—yellowish brown very gravelly loam (lower part of surface layer)  
 9 to 13 inches—yellowish brown very gravelly loam (upper part of subsoil)  
 13 to 17 inches—yellowish brown extremely cobbly loam (lower part of subsoil)  
 17 inches—basalt

#### ***Soil Properties and Qualities***

*Depth class:* Sohappy—deep; Fortyday—shallow  
*Drainage class:* Well drained

*Permeability:* Moderate  
*Available water capacity:* Sohappy—very high; Fortyday—very low  
*Restriction to rooting depth:* Sohappy—basalt at a depth of 40 to 60 inches; Fortyday—basalt at a depth of 14 to 20 inches

#### ***Contrasting Inclusions***

- Drino soils
- Rock outcrop
- Weirman and Esquatzel soils
- Rubble land

#### ***Major Uses***

Military training, livestock grazing, wildlife habitat

#### ***Livestock Grazing***

#### ***Development limitations***

##### **(Sohappy)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Severe—slope  
*Pipelines:* Severe—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Severe—slope  
*Brush control:* Severe—slope

##### **(Fortyday)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock  
*Pipelines:* Severe—depth to bedrock, slope  
*Livestock ponds:* Severe—depth to bedrock, slope  
*Seeding:* Severe—depth to bedrock, droughty surface layer, slope  
*Brush control:* Severe—slope

### **149—Starbuck-Rock outcrop complex, 3 to 15 percent slopes**

#### ***Composition***

*Starbuck and similar soils*—50 percent  
*Rock outcrop*—25 percent  
*Contrasting inclusions*—25 percent

#### ***Setting***

*Position on landscape:* Benches  
*Parent material:* Starbuck—loess, alluvium; Rock outcrop—basalt  
*Slope range:* 3 to 15 percent  
*Elevation:* 500 to 1,200 feet  
*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Starbuck**

#### **Typical profile**

0 to 3 inches—brown fine sandy loam (surface layer)  
 3 to 16 inches—pale brown fine sandy loam  
 (subsoil)  
 16 inches—basalt

#### **Soil properties and qualities**

*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 12 to 20 inches

### **Rock Outcrop**

Exposures of barren basalt

### **Contrasting Inclusions**

- Nevo soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

#### **(Starbuck)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock  
*Pipelines:* Severe—depth to bedrock  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer  
*Brush control:* Slight

## **150—Tanksel-Patron-Camaspatch complex, 15 to 30 percent slopes**

### **Composition**

*Tanksel and similar soils—*35 percent  
*Patron and similar soils—*30 percent  
*Camaspach and similar soils—*25 percent  
*Contrasting inclusions—*10 percent

### **Setting**

*Position on landscape:* Tanksel—slightly concave and slightly convex areas on north-facing hillslopes; Patron—strongly concave areas on north-facing

hillslopes; Camaspach—strongly convex areas on north-facing hillslopes

*Parent material:* Tanksel—residuum and colluvium derived from basalt, slope alluvium, loess mixed with volcanic ash in the upper part; Patron—residuum and colluvium derived from basalt, loess mixed with volcanic ash in the upper part; Camaspach—residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Tanksel**

0 to 4 inches—dark grayish brown loam (upper part of surface layer)  
 4 to 12 inches—dark grayish brown gravelly loam (lower part of surface layer)  
 12 to 22 inches—brown very gravelly clay loam (upper part of subsoil)  
 22 to 30 inches—yellowish brown very gravelly clay loam (middle part of subsoil)  
 30 to 34 inches—brown extremely gravelly clay (lower part of subsoil)  
 34 inches—basalt

#### **Patron**

0 to 3 inches—brown gravelly silt loam (upper part of surface layer)  
 3 to 12 inches—dark grayish brown gravelly silt loam (lower part of surface layer)  
 12 to 23 inches—brown gravelly silty clay loam (upper part of subsoil)  
 23 to 35 inches—yellowish brown gravelly silty clay loam (next part of subsoil)  
 35 to 60 inches—yellowish brown very gravelly clay loam (lower part of subsoil)

#### **Camaspach**

0 to 2 inches—grayish brown very cobbly loam (surface layer)  
 2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)  
 12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)  
 19 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Tanksel—moderately deep; Patron—very deep; Camaspach—shallow  
*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Tanksel—moderate;  
Patron—high; Camaspatch—very low

*Potential rooting depth:* Patron—more than  
60 inches

*Restriction to rooting depth:* Tanksel—basalt at a  
depth of 20 to 40 inches; Camaspatch—basalt  
at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Windy soils
- Blint soils
- Wockum soils
- Lainand soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Tanksel)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface  
layer

*Pipelines:* Moderate—rock fragments in surface  
layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

##### **(Patron)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

##### **(Camaspatch)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in  
surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments  
in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface  
layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface  
layer

## **151—Tanksel-Patron-Camaspatch complex, 30 to 45 percent slopes**

### **Composition**

*Tanksel and similar soils—*35 percent

*Patron and similar soils—*30 percent

*Camaspatch and similar soils—*25 percent

*Contrasting inclusions—*10 percent

### **Setting**

*Position on landscape:* Tanksel—slightly convex and  
slightly concave areas on north-facing hillslopes;  
Patron—strongly concave areas on north-facing  
hillslopes; Camaspatch—strongly convex areas on  
north-facing hillslopes

*Parent material:* Tanksel—residuum and colluvium  
derived from basalt, slope alluvium, loess mixed  
with volcanic ash in the upper part; Patron—  
residuum and colluvium derived from basalt, loess  
mixed with volcanic ash in the upper part;  
Camaspatch—residuum and colluvium derived  
from basalt, loess

*Slope range:* 30 to 45 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Tanksel**

0 to 4 inches—dark grayish brown loam (upper part of  
surface layer)

4 to 12 inches—dark grayish brown gravelly loam  
(lower part of surface layer)

12 to 22 inches—brown very gravelly clay loam (upper  
part of subsoil)

22 to 30 inches—yellowish brown very gravelly clay  
loam (middle part of subsoil)

30 to 34 inches—brown extremely gravelly clay (lower  
part of subsoil)

34 inches—basalt

#### **Patron**

0 to 3 inches—brown gravelly silt loam (upper part of  
surface layer)

3 to 12 inches—dark grayish brown gravelly silt loam  
(lower part of surface layer)

12 to 23 inches—brown gravelly silty clay loam (upper  
part of subsoil)

23 to 35 inches—yellowish brown gravelly silty clay  
loam (middle part of subsoil)

35 to 60 inches—yellowish brown very gravelly clay  
loam (lower part of subsoil)

**Camaspatch**

0 to 2 inches—grayish brown very cobbly loam (surface layer)  
 2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)  
 12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)  
 19 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Tanksel—moderately deep; Patron—very deep; Camaspatch—shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Tanksel—moderate; Patron—high; Camaspatch—very low

*Potential rooting depth:* Patron—more than 60 inches

*Restriction to rooting depth:* Tanksel—basalt at a depth of 20 to 40 inches; Camaspatch—basalt at a depth of 12 to 20 inches

**Contrasting Inclusions**

- Windy soils
- Blint soils
- Wockum soils
- Lainand soils
- Rock outcrop
- Rubble land

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Tanksel)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

*Brush control:* Severe—slope

**(Patron)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

**(Camaspatch)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, slope, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer, slope

**152—Tanksel-Wockum complex, 15 to 30 percent slopes****Composition**

*Tanksel and similar soils—*45 percent

*Wockum and similar soils—*35 percent

*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Tanksel—slightly convex and slightly concave areas on north-facing hillslopes; Wockum—strongly concave areas on north-facing hillslopes

*Parent material:* Tanksel—residuum and colluvium derived from basalt, slope alluvium, loess mixed with volcanic ash in the upper part; Wockum—loess mixed with volcanic ash in the upper part, colluvium derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

**Typical Profile****Tanksel**

0 to 4 inches—dark grayish brown loam (upper part of surface layer)

4 to 12 inches—dark grayish brown gravelly loam (lower part of surface layer)

12 to 22 inches—brown very gravelly clay loam (upper part of subsoil)

22 to 30 inches—yellowish brown very gravelly clay loam (middle part of subsoil)

30 to 34 inches—brown extremely gravelly clay (lower part of subsoil)

34 inches—basalt

**Wockum**

- 0 to 12 inches—dark grayish brown silt loam (surface layer)
- 12 to 17 inches—dark brown silt loam (upper part of subsoil)
- 17 to 27 inches—brown silt loam (next part of subsoil)
- 27 to 40 inches—light yellowish brown silty clay loam (next part of subsoil)
- 40 to 60 inches—light brown gravelly clay loam (lower part of subsoil)

**Soil Properties and Qualities**

- Depth class:* Tanksel—moderately deep; Wockum—very deep
- Drainage class:* Well drained
- Permeability:* Tanksel—slow; Wockum—moderately slow
- Available water capacity:* Tanksel—moderate; Wockum—very high
- Potential rooting depth:* Wockum—more than 60 inches
- Restriction to rooting depth:* Tanksel—basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Windy soils
- Camaspatch soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Tanksel)**

- Corrosivity (uncoated steel):* Moderate
- Corrosivity (concrete):* Low
- Fences:* Moderate—rock fragments in surface layer
- Pipelines:* Moderate—rock fragments in surface layer, slope
- Livestock ponds:* Severe—slope, depth to bedrock
- Seeding:* Severe—rock fragments in surface layer
- Brush control:* Moderate—slope

**(Wockum)**

- Corrosivity (uncoated steel):* Moderate
- Corrosivity (concrete):* Low
- Fences:* Slight
- Pipelines:* Moderate—slope
- Livestock ponds:* Severe—slope
- Seeding:* Moderate—slope
- Brush control:* Moderate—slope

**153—Tanksel-Wockum complex, 30 to 45 percent slopes****Composition**

- Tanksel and similar soils*—45 percent
- Wockum and similar soils*—35 percent
- Contrasting inclusions*—20 percent

**Setting**

- Position on landscape:* Tanksel—slightly concave and slightly convex areas on north-facing hillslopes; Wockum—strongly concave areas on north-facing hillslopes
- Parent material:* Tanksel—residuum and colluvium derived from basalt, slope alluvium, loess mixed with volcanic ash in the upper part; Wockum—loess mixed with volcanic ash in the upper part, colluvium derived from basalt
- Slope range:* 30 to 45 percent
- Elevation:* 2,500 to 3,300 feet
- Average annual precipitation:* 12 to 15 inches
- Average annual air temperature:* 46 to 48 degrees F
- Frost-free season (32 degrees F):* 120 to 135 days

**Typical Profile****Tanksel**

- 0 to 4 inches—dark grayish brown loam (upper part of surface layer)
- 4 to 12 inches—dark grayish brown gravelly loam (lower part of surface layer)
- 12 to 22 inches—brown very gravelly clay loam (upper part of subsoil)
- 22 to 30 inches—yellowish brown very gravelly clay loam (middle part of subsoil)
- 30 to 34 inches—brown extremely gravelly clay (lower part of subsoil)
- 34 inches—basalt

**Wockum**

- 0 to 12 inches—dark grayish brown silt loam (surface layer)
- 12 to 17 inches—dark brown silt loam (upper part of subsoil)
- 17 to 27 inches—brown silt loam (next part of subsoil)
- 27 to 40 inches—light yellowish brown silty clay loam (next part of subsoil)
- 40 to 60 inches—light brown gravelly clay loam (lower part of subsoil)

**Soil Properties and Qualities**

- Depth class:* Tanksel—moderately deep; Wockum—very deep

*Drainage class:* Well drained

*Permeability:* Tanksel—slow; Wockum—moderately slow

*Available water capacity:* Tanksel—moderate; Wockum—very high

*Potential rooting depth:* Wockum—more than 60 inches

*Restriction to rooting depth:* Tanksel—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Windry soils
- Camaspatch soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Tanksel)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

##### **(Wockum)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

## **154—Tanksel-Wockum complex, 45 to 65 percent slopes**

### **Composition**

*Tanksel and similar soils*—45 percent

*Wockum and similar soils*—35 percent

*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Tanksel—slightly convex and slightly concave areas on north-facing hillslopes;

Wockum—strongly convex areas on north-facing hillslopes

*Parent material:* Tanksel—residuum and alluvium derived from basalt, slope alluvium, loess mixed with volcanic ash in the upper part; Wockum—colluvium derived from basalt, loess mixed with volcanic ash in the upper part

*Slope range:* 45 to 65 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Tanksel**

0 to 4 inches—dark grayish brown loam (upper part of surface layer)

4 to 12 inches—dark grayish brown gravelly loam (lower part of surface layer)

12 to 22 inches—brown very gravelly clay loam (upper part of subsoil)

22 to 30 inches—yellowish brown very gravelly clay loam (middle part of subsoil)

30 to 34 inches—brown extremely gravelly clay (lower part of subsoil)

34 inches—basalt

#### **Wockum**

0 to 12 inches—dark grayish brown silt loam (surface layer)

12 to 17 inches—dark brown silt loam (upper part of subsoil)

17 to 27 inches—brown silt loam (next part of subsoil)

27 to 40 inches—light yellowish brown silty clay loam (next part of subsoil)

40 to 60 inches—light brown gravelly clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Tanksel—moderately deep; Wockum—very deep

*Drainage class:* Well drained

*Permeability:* Tanksel—slow; Wockum—moderately slow

*Available water capacity:* Tanksel—moderate; Wockum—very high

*Potential rooting depth:* Wockum—more than 60 inches

*Restriction to rooting depth:* Tanksel—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Windry soils
- Camaspatch soils

- Rock outcrop
- Rubble land

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Tanksel)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope

*Brush control:* Severe—slope

##### **(Wockum)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

## **155—Terlan gravelly loam, 2 to 5 percent slopes**

### **Composition**

*Terlan and similar soils—*80 percent

*Contrasting inclusions—*20 percent

### **Setting**

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 2 to 5 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 4 inches—grayish brown gravelly loam (upper part of surface layer)

4 to 10 inches—grayish brown loam (lower part of surface layer)

10 to 15 inches—pale brown gravelly clay loam (upper part of subsoil)

15 to 18 inches—pale brown, calcareous gravelly clay loam (lower part of subsoil)

18 to 28 inches—indurated, lime- and silica-cemented hardpan

28 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Moderate above the hardpan

*Available water capacity:* Moderate

*Restriction to rooting depth:* Hardpan at a depth of 10 to 20 inches

### **Contrasting Inclusions**

- Gorst, Durtash, and Gorskel soils
- Benwy soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan, droughty surface layer

*Brush control:* Slight

## **156—Terlan gravelly loam, 5 to 10 percent slopes**

### **Composition**

*Terlan and similar soils—*80 percent

*Contrasting inclusions—*20 percent

### **Setting**

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 5 to 10 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 150 days

### **Typical Profile**

0 to 4 inches—grayish brown gravelly loam (upper part of surface layer)

4 to 10 inches—grayish brown loam (lower part of surface layer)

- 10 to 15 inches—pale brown gravelly clay loam (upper part of subsoil)
- 15 to 18 inches—pale brown, calcareous gravelly clay loam (lower part of subsoil)
- 18 to 28 inches—indurated, lime- and silica-cemented hardpan
- 28 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Moderate above the hardpan

*Available water capacity:* Moderate

*Restriction to rooting depth:* Hardpan at a depth of 10 to 20 inches

### **Contrasting Inclusions**

- Gorst and Gorskel soils
- Benwy and Meloza soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan, droughty surface layer

*Brush control:* Slight

## **157—Terlan-Durtash-Selah complex, 2 to 5 percent slopes**

### **Composition**

*Terlan and similar soils—*35 percent

*Durtash and similar soils—*30 percent

*Selah and similar soils—*25 percent

*Contrasting inclusions—*10 percent

### **Setting**

*Position on landscape:* Terlan and Selah—alluvial fans; Durtash—slightly convex areas on alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 2 to 5 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Terlan**

- 0 to 9 inches—grayish brown loam (surface layer)
- 9 to 14 inches—pale brown clay loam (upper part of subsoil)
- 14 to 17 inches—pale brown, calcareous gravelly clay loam (lower part of subsoil)
- 17 to 27 inches—indurated, lime- and silica-cemented hardpan
- 27 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Durtash**

- 0 to 5 inches—grayish brown cobbly loam (surface layer)
- 5 to 9 inches—brown gravelly clay loam (upper part of subsoil)
- 9 to 18 inches—dark brown very gravelly clay loam (lower part of subsoil)
- 18 to 28 inches—indurated, lime- and silica-cemented hardpan
- 28 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Selah**

- 0 to 9 inches—brown silt loam (surface layer)
- 9 to 14 inches—brown silt loam (upper part of subsoil)
- 14 to 17 inches—brown silty clay loam (middle part of subsoil)
- 17 to 25 inches—pale brown gravelly clay loam (lower part of subsoil)
- 25 to 35 inches—indurated, lime- and silica-cemented hardpan
- 35 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

### **Soil Properties and Qualities**

*Depth class:* Terlan and Durtash—shallow to a hardpan; Selah—moderately deep to a hardpan

*Drainage class:* Well drained

*Permeability:* Terlan—moderate above the hardpan; Durtash—slow above the hardpan; Selah—moderately slow above the hardpan

*Available water capacity:* Terlan—moderate; Durtash—low; Selah—high

*Restriction to rooting depth:* Terlan and Durtash—hardpan at a depth of 10 to 20 inches; Selah—hardpan at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Benwy and Meloza soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Terlan and Durtash)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan

*Brush control:* Slight

##### **(Selah)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Slight

*Brush control:* Slight

### **158—Terlan-Durtash-Selah complex, 5 to 15 percent slopes**

#### **Composition**

*Terlan and similar soils—*35 percent

*Durtash and similar soils—*30 percent

*Selah and similar soils—*25 percent

*Contrasting inclusions—*10 percent

#### **Setting**

*Position on landscape:* Terlan and Selah—alluvial fans;

Durtash—slightly convex areas on alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 5 to 15 percent

*Elevation:* 1,800 to 2,500 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

##### **Terlan**

0 to 9 inches—grayish brown loam (surface layer)

9 to 14 inches—pale brown clay loam (upper part of subsoil)

14 to 17 inches—pale brown, calcareous gravelly clay loam (lower part of subsoil)

17 to 27 inches—indurated, lime- and silica-cemented hardpan

27 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

##### **Durtash**

0 to 5 inches—grayish brown cobbly loam (surface layer)

5 to 9 inches—brown gravelly clay loam (upper part of subsoil)

9 to 18 inches—brown very gravelly clay loam (lower part of subsoil)

18 to 28 inches—indurated, lime- and silica-cemented hardpan

28 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

##### **Selah**

0 to 9 inches—brown silt loam (surface layer)

9 to 14 inches—brown silt loam (upper part of subsoil)

14 to 17 inches—brown silty clay loam (middle part of subsoil)

17 to 25 inches—pale brown gravelly clay loam (lower part of subsoil)

25 to 35 inches—indurated, lime- and silica-cemented hardpan

35 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Soil Properties and Qualities**

*Depth class:* Terlan and Durtash—shallow to a hardpan; Selah—moderately deep to a hardpan

*Drainage class:* Well drained

*Permeability:* Terlan—moderate above the hardpan; Durtash—slow above the hardpan; Selah—moderately slow above the hardpan

*Available water capacity:* Terlan—moderate; Durtash—low; Selah—high

*Restriction to rooting depth:* Terlan and Durtash—hardpan at a depth of 10 to 20 inches; Selah—hardpan at a depth of 20 to 40 inches

#### **Contrasting Inclusions**

- Benwy soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Terlan)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan, slope

*Seeding:* Severe—depth to hardpan

*Brush control:* Slight

#### **(Durtash)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan

*Brush control:* Slight

#### **(Selah)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Slight

*Brush control:* Slight

### **159—Timmerman complex, 2 to 5 percent slopes**

#### **Composition**

*Timmerman sandy loam and similar soils—*  
50 percent

*Timmerman loamy sand and similar soils—*  
25 percent

*Contrasting inclusions—*25 percent

#### **Setting**

*Position on landscape:* Terraces

*Parent material:* Glacial outwash

*Slope range:* 2 to 5 percent

*Elevation:* 600 to 1,300 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

##### **Timmerman sandy loam**

0 to 3 inches—brown sandy loam (surface layer)

3 to 16 inches—brown sandy loam (upper part of subsoil)

16 to 60 inches—dark gray, calcareous loamy coarse sand (lower part of subsoil)

##### **Timmerman loamy sand**

0 to 3 inches—brown loamy sand (surface layer)

3 to 15 inches—brown sandy loam (upper part of subsoil)

15 to 60 inches—dark gray, calcareous loamy coarse sand (lower part of subsoil)

#### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid over very rapid

*Available water capacity:* Low

*Potential rooting depth:* More than 60 inches

#### **Contrasting Inclusions**

- Nevo soils
- Fortyday soils
- Rock outcrop
- Malaga soils
- Winchester soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Timmerman sandy loam)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—cutbanks cave

*Livestock ponds:* Severe—seepage

*Seeding:* Slight

*Brush control:* Slight

##### **(Timmerman loamy sand)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—cutbanks cave

*Livestock ponds:* Severe—seepage

*Seeding:* Severe—loose sand

*Brush control:* Slight

### **160—Tronsen stony loam, 3 to 15 percent slopes**

#### **Composition**

*Tronsen and similar soils—*75 percent

*Contrasting inclusions—*25 percent

#### **Setting**

*Position on landscape:* Hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 2,500 to 3,300 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 3 inches—dark grayish brown stony loam (surface layer)  
 3 to 18 inches—brown very gravelly clay (upper part of subsoil)  
 18 to 25 inches—yellowish brown very gravelly clay (middle part of subsoil)  
 25 to 60 inches—light yellowish brown extremely gravelly clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* High  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Camaspatch soils
- Whiskeydick and Blint soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Moderate—rock fragments in surface layer  
*Livestock ponds:* Moderate—slope  
*Seeding:* Moderate—rock fragments in surface layer  
*Brush control:* Slight

## **161—Tronsen stony loam, 15 to 30 percent slopes**

### **Composition**

*Tronsen and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* East- and west-facing hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent  
*Elevation:* 2,500 to 3,300 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 3 inches—dark grayish brown stony loam (surface layer)  
 3 to 18 inches—brown very gravelly clay (upper part of subsoil)  
 18 to 25 inches—yellowish brown very gravelly clay (middle part of subsoil)  
 25 to 60 inches—light yellowish brown extremely gravelly clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* High  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Camaspatch soils
- Whiskeydick soils
- Blint soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Moderate—rock fragments in surface layer, slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—rock fragments in surface layer, slope  
*Brush control:* Moderate—slope

## **162—Vantage extremely gravelly loam, 3 to 15 percent slopes**

### **Composition**

*Vantage and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Ridgetops, benches  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 3 to 15 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 3 inches—brown extremely gravelly loam (surface layer)  
 3 to 8 inches—brown very gravelly clay loam (upper part of subsoil)  
 8 to 14 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 14 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 12 to 20 inches

**Contrasting Inclusions**

- Clerf and Grinrod soils
- Horseflat soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock  
*Pipelines:* Severe—depth to bedrock  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer  
*Brush control:* Moderate—rock fragments in surface layer

**163—Vantage very cobbly loam, 3 to 15 percent slopes****Composition**

*Vantage and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Ridgetops, benches  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 3 to 15 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 3 inches—brown very cobbly loam (surface layer)  
 3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)  
 8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 17 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 12 to 20 inches

**Contrasting Inclusions**

- Clerf and Grinrod soils
- Argabak soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock, slope  
*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer  
*Brush control:* Severe—rock fragments in surface layer

**164—Vantage very cobbly loam, 15 to 30 percent slopes****Composition**

*Vantage and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* South-facing hillslopes  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 3 inches—brown very cobbly loam (surface layer)  
 3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)  
 8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 17 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 12 to 20 inches

**Contrasting Inclusions**

- Clerf and Grinrod soils
- Argabak soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock, slope  
*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer  
*Brush control:* Severe—rock fragments in surface layer

**165—Vantage very cobbly loam, thin, 3 to 15 percent slopes****Composition**

*Vantage and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Ridgetops, benches  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 3 to 15 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 3 inches—brown very cobbly loam (surface layer)  
 3 to 7 inches—brown very cobbly clay loam (upper part of subsoil)  
 7 to 13 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 13 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Very low  
*Restriction to rooting depth:* Basalt at a depth of 12 to 15 inches

**Contrasting Inclusions**

- Clerf and Grinrod soils
- Horseflat soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer  
*Brush control:* Severe—rock fragments in surface layer

**166—Vantage very cobbly loam, thin, 15 to 30 percent slopes****Composition**

*Vantage and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* South-facing hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 7 inches—brown very cobbly clay loam (upper part of subsoil)

7 to 13 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

13 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Basalt at a depth of 12 to 15 inches

**Contrasting Inclusions**

- Clerf and Grinrod soils
- Horseflat soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

**167—Vantage-Benwy-Argabak complex,  
3 to 15 percent slopes****Composition**

*Vantage and similar soils—*35 percent

*Benwy and similar soils—*30 percent

*Argabak and similar soils—*25 percent

*Contrasting inclusions—*10 percent

**Setting**

*Position on landscape:* Vantage and Argabak—slightly convex areas and areas between mounds on benches; Benwy—concave areas and mounds on benches

*Parent material:* Vantage—residuum and colluvium derived from basalt, loess; Benwy—loess, slope alluvium; Argabak—loess, residuum derived from basalt

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile****Vantage**

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)

8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

17 inches—basalt

**Benwy**

0 to 4 inches—brown silt loam (surface layer)

4 to 9 inches—dark yellowish brown silt loam (upper part of subsoil)

9 to 14 inches—yellowish brown silt loam (next part of subsoil)

14 to 33 inches—yellowish brown gravelly silt loam (next part of subsoil)

33 to 45 inches—light yellowish brown, calcareous gravelly silt loam (lower part of subsoil)

45 to 55 inches—indurated, lime- and silica-cemented hardpan

55 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

**Argabak**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)

2 to 6 inches—dark brown extremely gravelly loam (subsoil)

6 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Vantage—shallow; Benwy—deep to a hardpan; Argabak—very shallow

*Drainage class:* Well drained

*Permeability:* Vantage—slow; Benwy—moderate above the hardpan; Argabak—moderately slow

*Available water capacity:* Vantage and Argabak—very low; Benwy—very high

*Restriction to rooting depth:* Vantage—basalt at a depth of 12 to 20 inches; Benwy—hardpan at a depth of 40 to 60 inches; Argabak—basalt at a depth of 5 to 12 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

#### **(Vantage and Argabak)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

#### **(Benwy)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—depth to hardpan, slope

*Livestock ponds:* Moderate—depth to hardpan, slope

*Seeding:* Slight

*Brush control:* Slight

## **168—Vantage-Benwy-Argabak complex, 15 to 30 percent slopes**

### **Composition**

*Vantage and similar soils*—35 percent

*Benwy and similar soils*—30 percent

*Argabak and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Vantage—slightly convex areas and areas between mounds on south-facing hillslopes; Benwy—concave areas and mounds on

south-facing hillslopes; Argabak—slightly convex areas and areas between mounds on benches

*Parent material:* Vantage—residuum and colluvium derived from basalt, loess; Benwy—loess, slope alluvium; Argabak—loess, residuum derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Vantage**

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)

8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

17 inches—basalt

#### **Benwy**

0 to 4 inches—brown silt loam (surface layer)

4 to 9 inches—dark yellowish brown silt loam (upper part of subsoil)

9 to 14 inches—yellowish brown silt loam (next part of subsoil)

14 to 33 inches—yellowish brown gravelly silt loam (next part of subsoil)

33 to 45 inches—light yellowish brown, calcareous gravelly silt loam (lower part of subsoil)

45 to 55 inches—indurated, lime- and silica-cemented hardpan

55 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Argabak**

0 to 2 inches—yellowish brown very cobbly loam (surface layer)

2 to 6 inches—dark brown extremely gravelly loam (subsoil)

6 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Vantage—shallow; Benwy—deep to a hardpan; Argabak—very shallow

*Drainage class:* Well drained

*Permeability:* Vantage—slow; Benwy—moderate above the hardpan; Argabak—moderately slow

*Available water capacity:* Vantage and Argabak—very low; Benwy—very high

*Restriction to rooting depth:* Vantage—basalt at a depth of 12 to 20 inches; Benwy—basalt at a

depth of 40 to 60 inches; Argabak—hardpan at a depth of 5 to 12 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Vantage and Argabak)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

##### **(Benwy)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Moderate—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

## **169—Vantage-Clerf complex, 3 to 15 percent slopes**

### **Composition**

*Vantage and similar soils—*45 percent

*Clerf and similar soils—*35 percent

*Contrasting inclusions—*20 percent

### **Setting**

*Position on landscape:* Vantage—slightly convex areas on ridgetops; Clerf—slightly concave areas and small mounds on ridgetops

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Vantage**

0 to 3 inches—dark brown very cobbly loam (surface layer)

3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)

8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

17 inches—basalt

#### **Clerf**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)

3 to 6 inches—grayish brown very gravelly loam (lower part of surface layer)

6 to 12 inches—brown very gravelly clay (upper part of subsoil)

12 to 24 inches—brown extremely cobbly clay (lower part of subsoil)

24 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Vantage—shallow; Clerf—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Vantage—very low; Clerf—low

*Restriction to rooting depth:* Vantage—basalt at a depth of 12 to 20 inches; Clerf—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Caliralls, Benwy, and Wipple soils
- Argabak soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

**(Clerf)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

**170—Vantage-Clerf complex, 15 to 30 percent slopes**

***Composition***

*Vantage and similar soils*—45 percent

*Clerf and similar soils*—35 percent

*Contrasting inclusions*—20 percent

***Setting***

*Position on landscape:* Vantage—slightly convex areas on south-facing ridgetops and hillslopes; Clerf—slightly concave areas and small mounds on south-facing ridgetops and hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

***Typical Profile***

**Vantage**

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)

8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

17 inches—basalt

**Clerf**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)

3 to 6 inches—grayish brown very gravelly loam (lower part of surface layer)

6 to 12 inches—brown very gravelly clay (upper part of subsoil)

12 to 24 inches—brown extremely cobbly clay (lower part of subsoil)

24 inches—basalt

***Soil Properties and Qualities***

*Depth class:* Vantage—shallow; Clerf—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Vantage—very low; Clerf—low

*Restriction to rooting depth:* Vantage—basalt at a depth of 12 to 20 inches; Clerf—basalt at a depth of 20 to 40 inches

***Contrasting Inclusions***

- Caliralls, Benwy, and Wipple soils
- Argabak soils
- Rock outcrop

***Major Uses***

Military training, livestock grazing, wildlife habitat

***Livestock Grazing***

**Development limitations**

**(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

**(Clerf)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

**171—Vantage-Clerf complex, 30 to 45 percent slopes**

***Composition***

*Vantage and similar soils*—45 percent

*Clerf and similar soils*—35 percent  
*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Vantage—convex areas on south-facing hillslopes; Clerf—slightly concave areas and small mounds on south-facing hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 30 to 45 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Vantage**

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)

8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

17 inches—basalt

#### **Clerf**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)

3 to 6 inches—grayish brown very gravelly loam (lower part of surface layer)

6 to 12 inches—brown very gravelly clay (upper part of subsoil)

12 to 24 inches—brown extremely cobbly clay (lower part of subsoil)

24 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Vantage—shallow; Clerf—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Vantage—very low; Clerf—low

*Restriction to rooting depth:* Vantage—basalt at a depth of 12 to 20 inches; Clerf—basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Caliralls, Benwy, and Wipple soils
- Argabak soils
- Rock outcrop
- Rubble land

### **Major Uses**

Military training, livestock grazing, wildlife habitat

## **Livestock Grazing**

### **Development limitations**

#### **(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer, slope

*Brush control:* Severe—rock fragments in surface layer, slope

#### **(Clerf)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer, slope

*Pipelines:* Severe—rock fragments in surface layer, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—rock fragments in surface layer, droughty surface layer, slope

*Brush control:* Severe—rock fragments in surface layer, slope

## **172—Vantage-Clerf-Rubble land complex, 30 to 45 percent slopes**

### **Composition**

*Vantage and similar soils*—35 percent

*Clerf and similar soils*—30 percent

*Rubble land*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Vantage—convex areas on south-facing hillslopes; Clerf and Rubble land—slightly convex areas on south-facing hillslopes

*Parent material:* Vantage and Clerf—residuum and colluvium derived from basalt, loess; Rubble land—basalt

*Slope range:* 30 to 45 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### Typical Profile

#### Vantage

0 to 3 inches—brown very cobbly loam (surface layer)  
 3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)  
 8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
 17 inches—basalt

#### Clerf

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)  
 3 to 6 inches—grayish brown very gravelly loam (lower part of surface layer)  
 6 to 12 inches—brown very gravelly clay (upper part of subsoil)  
 12 to 24 inches—brown extremely cobbly clay (lower part of subsoil)  
 24 inches—basalt

#### Soil Properties and Qualities

*Depth class:* Vantage—shallow; Clerf—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Vantage—very low; Clerf—low

*Restriction to rooting depth:* Vantage—basalt at a depth of 12 to 20 inches; Clerf—basalt at a depth of 20 to 40 inches

#### Description of Rubble Land

Areas of stones and boulders

#### Contrasting Inclusions

- Caliralls and Wipple soils
- Argabak soils
- Rock outcrop

#### Major Uses

Military training, livestock grazing, wildlife habitat

#### Livestock Grazing

#### Development limitations

##### (Vantage)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer, slope

*Brush control:* Severe—rock fragments in surface layer, slope

##### (Clerf)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer, slope

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—rock fragments in surface layer, slope

*Brush control:* Severe—rock fragments in surface layer, slope

### 173—Vantage-Niben-Clerf complex, 3 to 15 percent slopes

#### Composition

*Vantage and similar soils*—35 percent

*Niben and similar soils*—30 percent

*Clerf and similar soils*—25 percent

*Contrasting inclusions*—10 percent

#### Setting

*Position on landscape:* Vantage—slightly convex areas on ridgetops; Niben—concave areas on shoulders of dissected plateaus; Clerf—slightly concave areas and small mounds on ridgetops

*Parent material:* Vantage and Clerf—residuum and colluvium derived from basalt, loess; Niben—interbedded sediment and slope alluvium with additions of loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* Vantage and Clerf—12 to 15 inches with runoff from higher lying, shallow soils and moisture moving through interbeds in basalt; Niben—9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

#### Typical Profile

##### Vantage

0 to 3 inches—dark brown very cobbly loam (surface layer)

3 to 7 inches—brown very cobbly clay loam (upper part of subsoil)

7 to 16 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

16 inches—basalt

**Niben**

0 to 5 inches—brown loam (surface layer)  
 5 to 21 inches—brown clay loam (upper part of subsoil)  
 21 to 53 inches—brown clay (middle part of subsoil)  
 53 to 60 inches—brown clay loam (lower part of subsoil)

**Clerf**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)  
 3 to 8 inches—grayish brown very gravelly loam (lower part of surface layer)  
 8 to 14 inches—brown very gravelly clay (upper part of subsoil)  
 14 to 26 inches—brown extremely gravelly clay (lower part of subsoil)  
 26 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Vantage—shallow; Niben—very deep;

Clerf—moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Vantage—very low; Niben—very high; Clerf—low

*Potential rooting depth:* Niben—more than 60 inches

*Restriction to rooting depth:* Vantage—basalt at a depth of 12 to 20 inches; Clerf—basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Wipple soils
- Argabak soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

**(Niben)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—slope

*Seeding:* Slight

*Brush control:* Slight

**(Clerf)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

**174—Vantage very cobbly loams complex, 3 to 15 percent slopes****Composition**

*Vantage and similar soils—*45 percent

*Vantage, thin, and similar soils—*35 percent

*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Vantage—smooth areas on ridgetops and benches; Vantage, thin—slightly convex areas on ridgetops and benches

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile****Vantage**

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 8 inches—brown very cobbly clay loam (upper part of subsoil)

8 to 17 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

17 inches—basalt

**Vantage, thin**

0 to 3 inches—brown very cobbly loam (surface layer)

3 to 7 inches—brown very cobbly clay loam (upper part of subsoil)

7 to 13 inches—yellowish brown extremely gravelly clay (lower part of subsoil)  
13 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Vantage—basalt at a depth of 15 to 20 inches; Vantage, thin—basalt at a depth of 12 to 15 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Argabak soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—depth to bedrock, rock fragments in surface layer

#### **(Vantage, thin)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

## **175—Vantage very stony loams complex, 3 to 15 percent slopes**

### **Composition**

*Vantage and similar soils*—45 percent

*Vantage, thin, and similar soils*—35 percent  
*Contrasting inclusions*—20 percent

### **Setting**

*Position on landscape:* Vantage—smooth areas on ridgetops and benches; Vantage, thin—slightly convex areas on ridgetops and benches

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Vantage**

0 to 3 inches—brown very stony loam (surface layer)

3 to 9 inches—brown very cobbly clay loam (upper part of subsoil)

9 to 16 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

16 inches—basalt

#### **Vantage, thin**

0 to 3 inches—brown very stony loam (surface layer)

3 to 6 inches—brown very cobbly clay loam (upper part of subsoil)

6 to 14 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

14 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Vantage—basalt at a depth of 15 to 20 inches; Vantage, thin—basalt at a depth of 12 to 15 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer

*Brush control:* Severe—depth to bedrock, rock fragments in surface layer

#### **(Vantage, thin)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

### **176—Vantage very stony loams complex, 15 to 30 percent slopes**

#### **Composition**

*Vantage and similar soils—*45 percent

*Vantage, thin, and similar soils—*35 percent

*Contrasting inclusions—*20 percent

#### **Setting**

*Position on landscape:* Vantage—smooth areas on south-facing ridgetops, benches, and hillslopes; Vantage, thin—slightly convex areas on ridgetops, benches, and hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

#### **Typical Profile**

##### **Vantage**

0 to 3 inches—brown very stony loam (surface layer)

3 to 9 inches—brown very cobbly clay loam (upper part of subsoil)

9 to 16 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

16 inches—basalt

##### **Vantage, thin**

0 to 3 inches—brown very stony loam (surface layer)

3 to 6 inches—brown very cobbly clay loam (upper part of subsoil)

6 to 14 inches—yellowish brown extremely gravelly clay (lower part of subsoil)

14 inches—basalt

#### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Very low

*Restriction to rooting depth:* Vantage—basalt at a depth of 15 to 20 inches; Vantage, thin—basalt at a depth of 12 to 15 inches

#### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Vantage)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock, slope

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—depth to bedrock, rock fragments in surface layer

##### **(Vantage, thin)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, rock fragments in surface layer, droughty surface layer

*Brush control:* Severe—rock fragments in surface layer

### **177—Wanapum cobbly loam, 2 to 5 percent slopes**

#### **Composition**

*Wanapum and similar soils*—75 percent

*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 2 to 5 percent

*Elevation:* 1,000 to 1,800 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

0 to 6 inches—pale brown cobbly loam (surface layer)

6 to 13 inches—light yellowish brown very gravelly loam (subsoil)

13 to 23 inches—indurated, lime- and silica-cemented hardpan

23 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Soil Properties and Qualities**

*Depth class:* Shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Moderately slow above the hardpan

*Available water capacity:* Very low

*Restriction to rooting depth:* Hardpan at a depth of 11 to 19 inches

#### **Contrasting Inclusions**

- Drysel soils
- Fortyday soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan

*Brush control:* Moderate—rock fragments in surface layer

### **178—Wanapum complex, 5 to 10 percent slopes**

#### **Composition**

*Wanapum loam and similar soils*—45 percent

*Wanapum cobbly loam and similar soils*—30 percent

*Contrasting inclusions*—25 percent

#### **Setting**

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 5 to 10 percent

*Elevation:* 1,000 to 1,800 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

##### **Wanapum loam**

0 to 6 inches—pale brown loam (surface layer)

6 to 13 inches—light yellowish brown very gravelly loam (subsoil)

13 to 23 inches—indurated, lime- and silica-cemented hardpan

23 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

##### **Wanapum cobbly loam**

0 to 6 inches—pale brown cobbly loam (surface layer)

6 to 13 inches—light yellowish brown very gravelly loam (subsoil)

13 to 23 inches—indurated, lime- and silica-cemented hardpan

23 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Soil Properties and Qualities**

*Depth class:* Shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Moderately slow above the hardpan

*Available water capacity:* Very low

*Restriction to rooting depth:* Hardpan at a depth of 11 to 19 inches

### ***Contrasting Inclusions***

- Drysel soils
- Fortyday soils

### ***Major Uses***

Military training, livestock grazing, wildlife habitat

### ***Livestock Grazing***

#### **Development limitations**

##### **(Wanapum loam)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan, droughty surface layer

*Brush control:* Moderate

##### **(Wanapum cobbly loam)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan, droughty surface layer

*Brush control:* Slight

### **179—Wanapum complex, 10 to 15 percent slopes**

#### ***Composition***

*Wanapum loam and similar soils*—45 percent

*Wanapum cobbly loam and similar soils*—30 percent

*Contrasting inclusions*—25 percent

#### ***Setting***

*Position on landscape:* Alluvial fans

*Parent material:* Loess, alluvium

*Slope range:* 10 to 15 percent

*Elevation:* 1,000 to 1,800 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### ***Typical Profile***

##### **Wanapum loam**

0 to 6 inches—pale brown loam (surface layer)

6 to 13 inches—light yellowish brown very gravelly loam (subsoil)

13 to 23 inches—indurated, lime- and silica-cemented hardpan

23 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

##### **Wanapum cobbly loam**

0 to 6 inches—pale brown cobbly loam (surface layer)

6 to 13 inches—light yellowish brown very gravelly loam (subsoil)

13 to 23 inches—indurated, lime- and silica-cemented hardpan

23 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### ***Soil Properties and Qualities***

*Depth class:* Shallow to a hardpan

*Drainage class:* Well drained

*Permeability:* Moderately slow above the hardpan

*Available water capacity:* Very low

*Restriction to rooting depth:* Hardpan at a depth of 11 to 19 inches

### ***Contrasting Inclusions***

- Drysel soils
- Fortyday soils

### ***Major Uses***

Military training, livestock grazing, wildlife habitat

### ***Livestock Grazing***

#### **Development limitations**

##### **(Wanapum loam)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan, droughty surface layer

*Brush control:* Slight

##### **(Wanapum cobbly loam)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to hardpan

*Pipelines:* Severe—depth to hardpan

*Livestock ponds:* Severe—depth to hardpan

*Seeding:* Severe—depth to hardpan, droughty surface layer

*Brush control:* Moderate

## 180—Whiskeydick very cobbly loam, 15 to 30 percent slopes

### **Composition**

*Whiskeydick and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* South-facing ridgetops, hillslopes, benches  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 2,900 to 4,200 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 4 inches—dark brown very cobbly loam (surface layer)  
4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)  
10 to 21 inches—brown very cobbly clay (next part of subsoil)  
21 to 30 inches—dark yellowish brown extremely cobbly clay (lower part of subsoil)  
30 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Moderately deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Camaspatch and Windry soils
- Tronsen soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—rock fragments in surface layer  
*Pipelines:* Severe—rock fragments in surface layer  
*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## 181—Whiskeydick very cobbly loam, 30 to 45 percent slopes

### **Composition**

*Whiskeydick and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

### **Setting**

*Position on landscape:* South-facing hillslopes  
*Parent material:* Residuum and colluvium derived from basalt, loess  
*Slope range:* 30 to 45 percent  
*Elevation:* 2,900 to 4,200 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 4 inches—dark brown very cobbly loam (surface layer)  
4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)  
10 to 21 inches—brown very cobbly clay (next part of subsoil)  
21 to 30 inches—dark yellowish brown extremely cobbly clay (lower part of subsoil)  
30 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Moderately deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

### **Contrasting Inclusions**

- Camaspatch and Windry soils
- Tronsen soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

## **182—Whiskeydick-Tronsen-Camaspatch complex, 15 to 30 percent slopes**

### **Composition**

*Whiskeydick and similar soils*—35 percent

*Tronsen and similar soils*—30 percent

*Camaspach and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Whiskeydick—slightly concave, south-facing hillslopes; Tronsen—strongly concave areas on north-facing hillslopes; Camaspach—strongly convex areas on north-facing hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 15 to 30 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 47 to 49 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Whiskeydick**

0 to 4 inches—dark brown very cobbly loam (surface layer)

4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)

10 to 21 inches—brown very cobbly clay (middle part of subsoil)

21 to 30 inches—dark yellowish brown extremely cobbly clay (lower part of subsoil)

30 inches—basalt

#### **Tronsen**

0 to 3 inches—dark grayish brown stony loam (surface layer)

3 to 18 inches—brown very gravelly clay (upper part of subsoil)

18 to 25 inches—yellowish brown very gravelly clay (middle part of subsoil)

25 to 60 inches—light yellowish brown extremely gravelly clay loam (lower part of subsoil)

#### **Camaspach**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)

12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)

19 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Whiskeydick—moderately deep; Tronsen—very deep; Camaspach—shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Whiskeydick—low; Tronsen—high; Camaspach—very low

*Potential rooting depth:* Tronsen—more than 60 inches

*Restriction to rooting depth:* Whiskeydick—basalt at a depth of 20 to 40 inches; Camaspach—basalt at a depth of 12 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Rock outcrop
- Rubble land

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—stones on surface, rock fragments in surface layer

##### **(Tronsen)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer, slope

*Pipelines:* Moderate—rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—rock fragments in surface layer, slope

*Brush control:* Moderate—slope

### **(Camaspach)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, stones on surface, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

## **183—Whiskeydick-Tronsen-Camaspach complex, 30 to 45 percent slopes**

### **Composition**

*Whiskeydick and similar soils*—35 percent

*Tronsen and similar soils*—30 percent

*Camaspach and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Position on landscape:* Whiskeydick—slightly concave and slightly convex areas on south-facing hillslopes; Tronsen—strongly concave areas on south-facing hillslopes; Camaspach—strongly convex areas on south-facing hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 30 to 45 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

#### **Whiskeydick**

0 to 4 inches—dark brown very cobbly loam (surface layer)

4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)

10 to 21 inches—brown very cobbly clay (middle part of subsoil)

21 to 30 inches—dark yellowish brown extremely cobbly clay (lower part of subsoil)

30 inches—basalt

#### **Tronsen**

0 to 3 inches—dark grayish brown stony loam (surface layer)

3 to 18 inches—brown very gravelly clay (upper part of subsoil)

18 to 25 inches—yellowish brown very gravelly clay (middle part of subsoil)

25 to 60 inches—light yellowish brown extremely gravelly clay loam (lower part of subsoil)

#### **Camaspach**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)

12 to 19 inches—brown extremely gravelly clay (lower part of subsoil)

19 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Whiskeydick—moderately deep;

Tronsen—very deep; Camaspach—shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Whiskeydick—low; Tronsen—high; Camaspach—very low

*Potential rooting depth:* Tronsen—more than 60 inches

*Restriction to rooting depth:* Whiskeydick—basalt at a depth of 20 to 40 inches; Camaspach—basalt at a depth of 15 to 20 inches

### **Contrasting Inclusions**

- Argabak soils
- Rock outcrop
- Rubble land

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

##### **(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

**(Tronsen)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer, slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

**(Camaspach)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—slope, depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

**184—Whiskeydick-Tronsen-Camaspach complex, 45 to 60 percent slopes*****Composition***

*Whiskeydick and similar soils—*35 percent

*Tronsen and similar soils—*30 percent

*Camaspach and similar soils—*25 percent

*Contrasting inclusions—*10 percent

***Setting***

*Position on landscape:* Whiskeydick—slightly convex and slightly concave areas on south-facing hillslopes; Tronsen—strongly concave areas on south-facing hillslopes; Camaspach—strongly convex areas on south-facing hillslopes

*Parent material:* Residuum and colluvium derived from basalt, loess

*Slope range:* 45 to 60 percent

*Elevation:* 2,900 to 4,200 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

***Typical Profile*****Whiskeydick**

0 to 4 inches—dark brown very cobbly loam (surface layer)

4 to 10 inches—brown very cobbly clay loam (upper part of subsoil)

10 to 21 inches—brown very cobbly clay (middle part of subsoil)

21 to 30 inches—dark yellowish brown extremely cobbly clay (lower part of subsoil)

30 inches—basalt

**Tronsen**

0 to 3 inches—dark grayish brown stony loam (surface layer)

3 to 18 inches—brown very gravelly clay (upper part of subsoil)

18 to 25 inches—yellowish brown very gravelly clay (middle part of subsoil)

25 to 60 inches—light yellowish brown extremely gravelly clay loam (lower part of subsoil)

**Camaspach**

0 to 2 inches—grayish brown very cobbly loam (surface layer)

2 to 12 inches—brown very gravelly clay loam (upper part of subsoil)

12 to 19 inches—brown extremely cobbly clay (lower part of subsoil)

19 inches—basalt

***Soil Properties and Qualities***

*Depth class:* Whiskeydick—moderately deep; Tronsen—very deep; Camaspach—shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Whiskeydick—low; Tronsen—high; Camaspach—very low

*Potential rooting depth:* Tronsen—more than 60 inches

*Restriction to rooting depth:* Whiskeydick—basalt at a depth of 20 to 40 inches; Camaspach—basalt at a depth of 15 to 20 inches

***Contrasting Inclusions***

- Argabak soils
- Rock outcrop
- Rubble land

***Major Uses***

Military training, livestock grazing, wildlife habitat

***Livestock Grazing*****Development limitations****(Whiskeydick)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

#### **(Tronsen)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

#### **(Camaspach)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

### **185—Winchester-Sagehill-Burbank complex, 5 to 30 percent slopes**

#### **Composition**

*Winchester and similar soils*—35 percent

*Sagehill and similar soils*—30 percent

*Burbank and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Position on landscape:* Winchester—terraces, dunes, terrace escarpments; Sagehill—terraces; Burbank—terrace escarpments

*Parent material:* Winchester—sandy alluvium, eolian sand, glacial outwash; Sagehill—lacustrine deposits with a mantle of loess; Burbank—glacial outwash

*Slope range:* 5 to 30 percent

*Elevation:* 600 to 1,300 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

##### **Winchester**

0 to 6 inches—grayish brown sand (surface layer)

6 to 17 inches—brown loamy sand (upper part of substratum)

17 to 60 inches—grayish brown sand (lower part of substratum)

##### **Sagehill**

0 to 4 inches—brown fine sandy loam (surface layer)

4 to 23 inches—yellowish brown fine sandy loam (upper part of subsoil)

23 to 35 inches—yellowish brown fine sandy loam (next part of subsoil)

35 to 50 inches—light brownish gray, calcareous fine sandy loam (next part of subsoil)

50 to 60 inches—light yellowish brown, calcareous fine sandy loam (lower part of subsoil)

##### **Burbank**

0 to 5 inches—brown very gravelly loamy sand (surface layer)

5 to 17 inches—brown very gravelly loamy sand (upper part of subsoil)

17 to 36 inches—light brownish gray, calcareous very gravelly sand (lower part of subsoil)

36 to 60 inches—dark gray, calcareous extremely gravelly coarse sand (substratum)

#### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Winchester and Burbank—excessively drained; Sagehill—well drained

*Permeability:* Winchester—rapid; Sagehill—moderate; Burbank—rapid over very rapid

*Available water capacity:* Winchester—low; Sagehill—very high; Burbank—very low

*Potential rooting depth:* More than 60 inches

#### **Contrasting Inclusions**

- Clenage soils
- Esquatzel and Weirman soils and Aquolls
- Rock outcrop
- Disage soils

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

#### **Livestock Grazing**

#### **Development limitations**

##### **(Winchester)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight  
*Pipelines:* Moderate—cutbanks cave  
*Livestock ponds:* Severe—seepage  
*Seeding:* Severe—loose sand, droughty surface layer  
*Brush control:* Severe—slope

**(Sagehill)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—slope  
*Livestock ponds:* Severe—seepage, slope  
*Seeding:* Moderate—slope  
*Brush control:* Moderate—slope

**(Burbank)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Moderate—slope, cutbanks cave  
*Livestock ponds:* Severe—seepage, slope  
*Seeding:* Severe—slope, droughty surface layer  
*Brush control:* Severe—slope

**186—Wipple cobbly clay loam, 3 to 15 percent slopes****Composition**

*Wipple and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

**Setting**

*Position on landscape:* Footslopes, hillslopes  
*Parent material:* Basalt colluvium, loess  
*Slope range:* 3 to 15 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 6 inches—brown cobbly clay loam (surface layer)  
 6 to 11 inches—brown very gravelly clay (upper part of subsoil)  
 11 to 20 inches—dark yellowish brown very gravelly clay (next part of subsoil)  
 20 to 26 inches—brown, calcareous very gravelly clay (next part of subsoil)  
 26 to 60 inches—yellowish brown, calcareous very gravelly clay loam (lower part of subsoil)

**Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained

*Permeability:* Slow  
*Available water capacity:* Moderate  
*Potential rooting depth:* More than 60 inches

**Contrasting Inclusions**

- Clerf and Grinrod soils
- Vantage and Horseflat soils
- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Moderate—rock fragments in surface layer  
*Livestock ponds:* Moderate—slope  
*Seeding:* Moderate—rock fragments in surface layer, slope  
*Brush control:* Moderate—rock fragments in surface layer, slope

**187—Wipple cobbly clay loam, 15 to 30 percent slopes****Composition**

*Wipple and similar soils*—75 percent  
*Contrasting inclusions*—25 percent

**Setting**

*Position on landscape:* Footslopes, hillslopes  
*Parent material:* Basalt colluvium, loess  
*Slope range:* 15 to 30 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 6 inches—brown cobbly clay loam (surface layer)  
 6 to 9 inches—brown very gravelly clay (upper part of subsoil)  
 9 to 22 inches—dark yellowish brown very gravelly clay (next part of subsoil)  
 22 to 25 inches—brown, calcareous very gravelly clay (next part of subsoil)  
 25 to 60 inches—yellowish brown, calcareous very gravelly clay loam (lower part of subsoil)

**Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained

*Permeability:* Slow  
*Available water capacity:* Moderate  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Vantage and Horseflat soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer, slope  
*Pipelines:* Moderate—rock fragments in surface layer, slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Moderate—rock fragments in surface layer, slope  
*Brush control:* Moderate—rock fragments in surface layer, slope

## **188—Wipple cobbly clay loam, 30 to 45 percent slopes**

### **Composition**

*Wipple and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Footslopes, hillslopes  
*Parent material:* Basalt colluvium, loess  
*Slope range:* 30 to 45 percent  
*Elevation:* 1,800 to 2,900 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

0 to 4 inches—brown cobbly clay loam (surface layer)  
 4 to 8 inches—brown very gravelly clay (upper part of subsoil)  
 8 to 19 inches—dark yellowish brown very gravelly clay (next part of subsoil)  
 19 to 23 inches—brown, calcareous very gravelly clay (next part of subsoil)  
 23 to 60 inches—yellowish brown, calcareous very gravelly clay loam (lower part of subsoil)

## **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* Moderate  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Clerf and Grinrod soils
- Vantage and Horseflat soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Moderate—rock fragments in surface layer  
*Pipelines:* Severe—slope  
*Livestock ponds:* Severe—slope  
*Seeding:* Severe—slope  
*Brush control:* Severe—slope

## **189—Wockum silt loam, 15 to 30 percent slopes**

### **Composition**

*Wockum and similar soils—*75 percent  
*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Concave, north-facing hillslopes  
*Parent material:* Loess mixed with volcanic ash in the upper part, colluvium derived from basalt  
*Slope range:* 15 to 30 percent  
*Elevation:* 2,500 to 3,300 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 48 degrees F  
*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 12 inches—dark grayish brown silt loam (surface layer)  
 12 to 17 inches—dark brown silt loam (upper part of subsoil)  
 17 to 27 inches—brown silty clay loam (next part of subsoil)  
 27 to 40 inches—light yellowish brown silty clay loam (next part of subsoil)

40 to 60 inches—light brown gravelly clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Windy soils
- Blint and Tanksel soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

## **190—Wockum silt loam, 30 to 45 percent slopes**

### **Composition**

*Wockum and similar soils—*75 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Concave, north-facing hillslopes

*Parent material:* Loess mixed with volcanic ash in the upper part, colluvium derived from basalt

*Slope range:* 30 to 45 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### **Typical Profile**

0 to 12 inches—dark grayish brown silt loam (surface layer)

12 to 17 inches—dark brown silt loam (upper part of subsoil)

17 to 27 inches—brown silt loam (next part of subsoil)

27 to 40 inches—light yellowish brown silty clay loam (next part of subsoil)

40 to 60 inches—light brown gravelly clay loam (lower part of subsoil)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Windy soils
- Blint and Tanksel soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Moderate—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

## **191—Wockum-Blint complex, 15 to 30 percent slopes**

### **Composition**

*Wockum and similar soils—*45 percent

*Blint and similar soils—*30 percent

*Contrasting inclusions—*25 percent

### **Setting**

*Position on landscape:* Wockum—strongly concave areas on north-facing hillslopes; Blint—slightly concave and slightly convex areas on north-facing hillslopes

*Parent material:* Loess mixed volcanic ash in the upper part, colluvium derived from basalt

*Slope range:* 15 to 30 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 46 to 48 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### Typical Profile

#### Wockum

- 0 to 12 inches—dark grayish brown silt loam (surface layer)
- 12 to 17 inches—dark brown silt loam (upper part of subsoil)
- 17 to 27 inches—brown silty clay loam (next part of subsoil)
- 27 to 40 inches—light yellowish brown silty clay loam (next part of subsoil)
- 40 to 60 inches—light brown gravelly clay loam (lower part of subsoil)

#### Blint

- 0 to 6 inches—dark brown very cobbly loam (upper part of surface layer)
- 6 to 14 inches—dark brown very gravelly loam (lower part of surface layer)
- 14 to 22 inches—brown very gravelly loam (upper part of subsoil)
- 22 to 37 inches—yellowish brown extremely gravelly loam (lower part of subsoil)
- 37 inches—basalt

### Soil Properties and Qualities

*Depth class:* Wockum—very deep; Blint—moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Wockum—very high; Blint—low

*Potential rooting depth:* Wockum—more than 60 inches

*Restriction to rooting depth:* Blint—basalt at a depth of 20 to 40 inches

### Contrasting Inclusions

- Rock outcrop
- Windry soils

### Major Uses

Military training, livestock grazing, wildlife habitat

### Livestock Grazing

#### Development limitations

##### (Wockum)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope

*Seeding:* Moderate—slope

*Brush control:* Moderate—slope

##### (Blint)

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—rock fragments in surface layer

*Pipelines:* Severe—rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### 192—Wockum-Blint-Windry complex, 45 to 60 percent slopes

#### Composition

*Wockum and similar soils—*35 percent

*Blint and similar soils—*30 percent

*Windry and similar soils—*25 percent

*Contrasting inclusions—*10 percent

#### Setting

*Position on landscape:* Wockum—strongly concave areas on north-facing hillslopes; Blint—slightly concave and slightly convex areas on north-facing hillslopes; Windry—strongly convex areas on north-facing hillslopes

*Parent material:* Wockum and Blint—loess mixed with volcanic ash in the upper part, colluvium derived from basalt; Windry—colluvium derived from basalt, loess

*Slope range:* 45 to 60 percent

*Elevation:* 2,500 to 3,300 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 47 to 49 degrees F

*Frost-free season (32 degrees F):* 120 to 135 days

### Typical Profile

#### Wockum

- 0 to 12 inches—dark grayish brown silt loam (surface layer)
- 12 to 17 inches—dark brown silt loam (upper part of subsoil)
- 17 to 27 inches—brown silt loam (next part of subsoil)
- 27 to 40 inches—light yellowish brown silty clay loam (next part of subsoil)
- 40 to 60 inches—light brown gravelly clay loam (lower part of subsoil)

#### Blint

- 0 to 6 inches—dark brown very cobbly loam (upper part of surface layer)

6 to 14 inches—dark brown very gravelly loam (lower part of surface layer)  
 14 to 22 inches—brown very gravelly loam (upper part of subsoil)  
 22 to 37 inches—yellowish brown extremely gravelly loam (lower part of subsoil)  
 37 inches—basalt

**Windry**

0 to 3 inches—grayish brown very cobbly loam (upper part of surface layer)  
 3 to 7 inches—brown very gravelly clay loam (lower part of surface layer)  
 7 to 15 inches—brown extremely cobbly clay loam (subsoil)  
 15 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Wockum—very deep; Blint—moderately deep; Windry—shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Wockum—very high; Blint—low; Windry—very low

*Potential rooting depth:* Wockum—more than 60 inches

*Restriction to rooting depth:* Blint—basalt at a depth of 20 to 40 inches; Windry—basalt at a depth of 14 to 20 inches

**Contrasting Inclusions**

- Rock outcrop

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations****(Wockum)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope

*Pipelines:* Severe—slope

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope

*Brush control:* Severe—slope

**(Blint)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—slope, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

**(Windry)**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer, slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Severe—depth to bedrock, slope, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—slope, rock fragments in surface layer

**193—Zen silt loam, 5 to 10 percent slopes****Composition**

*Zen and similar soils:* 75 percent

*Contrasting inclusions:* 25 percent

**Setting**

*Position on landscape:* Ridgetops, benches

*Parent material:* Loess

*Slope range:* 5 to 10 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 10 inches—brown silt loam (surface layer)

10 to 16 inches—brown silty clay loam (upper part of subsoil)

16 to 22 inches—yellowish brown silty clay loam (middle part of subsoil)

22 to 27 inches—yellowish brown, calcareous clay loam (lower part of subsoil)

27 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Horseflat soils
- Laric and Argabak soils
- Benwy and Caliralls soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

**194—Zen silt loam, 10 to 15 percent slopes****Composition**

*Zen and similar soils—*75 percent

*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Ridgetops, benches

*Parent material:* Loess

*Slope range:* 10 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 10 inches—brown silt loam (surface layer)

10 to 16 inches—brown silty clay loam (upper part of subsoil)

16 to 22 inches—yellowish brown silty clay loam (middle part of subsoil)

22 to 27 inches—yellowish brown, calcareous clay loam (lower part of subsoil)

27 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Horseflat soils
- Laric and Argabak soils
- Benwy and Caliralls soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Slight

*Brush control:* Slight

**195—Zen silt loam, 15 to 30 percent slopes****Composition**

*Zen and similar soils—*75 percent

*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* South-facing hillslopes

*Parent material:* Loess

*Slope range:* 15 to 30 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile**

0 to 10 inches—brown silt loam (surface layer)

10 to 16 inches—brown silty clay loam (upper part of subsoil)

16 to 22 inches—yellowish brown silty clay loam (middle part of subsoil)

22 to 27 inches—yellowish brown, calcareous clay loam (lower part of subsoil)

27 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Restriction to rooting depth:* Basalt at a depth of 20 to 40 inches

### ***Contrasting Inclusions***

- Horseflat soils
- Laric and Argabak soils
- Benwy and Caliralls soils
- Rock outcrop

### ***Major Uses***

Military training, livestock grazing, wildlife habitat

### ***Livestock Grazing***

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Moderate—slope

*Livestock ponds:* Severe—slope, depth to bedrock

*Seeding:* Moderate—slope, droughty surface layer

*Brush control:* Moderate—slope

## **196—Zen-Benwy-Laric complex, 3 to 15 percent slopes**

### ***Composition***

*Zen and similar soils—*35 percent

*Benwy and similar soils—*30 percent

*Laric and similar soils—*25 percent

*Contrasting inclusions—*10 percent

### ***Setting***

*Position on landscape:* Zen—slightly concave areas and mounds on benches; Benwy—concave areas and mounds on benches; Laric—slightly convex areas and areas between mounds on benches

*Parent material:* Zen—loess; Benwy—loess, slope alluvium; Laric—loess, residuum derived from basalt

*Slope range:* 3 to 15 percent

*Elevation:* 1,800 to 2,900 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

### ***Typical Profile***

#### **Zen**

0 to 10 inches—brown silt loam (surface layer)

10 to 16 inches—brown silty clay loam (upper part of subsoil)

16 to 22 inches—yellowish brown silty clay loam (middle part of subsoil)

22 to 27 inches—yellowish brown, calcareous clay loam (lower part of subsoil)

27 inches—basalt

#### **Benwy**

0 to 4 inches—brown silt loam (upper part of surface layer)

4 to 9 inches—dark yellowish brown silt loam (lower part of surface layer)

9 to 14 inches—yellowish brown silt loam (upper part of subsoil)

14 to 33 inches—yellowish brown gravelly silt loam (middle part of subsoil)

33 to 45 inches—light yellowish brown, calcareous gravelly silt loam (lower part of subsoil)

45 to 55 inches—indurated, lime- and silica-cemented hardpan

55 to 60 inches—stratified indurated material with lenses of very gravelly sandy loam

#### **Laric**

0 to 3 inches—brown very gravelly loam (surface layer)

3 to 8 inches—yellowish brown gravelly clay loam (subsoil)

8 inches—basalt

### ***Soil Properties and Qualities***

*Depth class:* Zen—moderately deep; Benwy—deep; Laric—very shallow

*Drainage class:* Well drained

*Permeability:* Zen and Laric—moderately slow; Benwy—moderate above the hardpan

*Available water capacity:* Zen—high; Benwy—very high; Laric—very low

*Restriction to rooting depth:* Zen—basalt at a depth of 20 to 40 inches; Benwy—hardpan at a depth of 40 to 60 inches; Laric—basalt at a depth of 5 to 12 inches

### ***Contrasting Inclusions***

- Horseflat soils

### ***Major Uses***

Military training, livestock grazing, wildlife habitat

### ***Livestock Grazing***

#### **Development limitations**

#### **(Zen)**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Slight  
*Brush control:* Slight

### **(Benwy)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Moderate—depth to hardpan, slope  
*Seeding:* Slight  
*Brush control:* Slight

### **(Laric)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock  
*Pipelines:* Severe—depth to bedrock  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer  
*Brush control:* Moderate—rock fragments in surface layer

## **197—Zen-Marlic-Laric complex, 3 to 15 percent slopes**

### **Composition**

*Zen and similar soils*—40 percent  
*Marlic and similar soils*—25 percent  
*Laric and similar soils*—20 percent  
*Contrasting inclusions*—15 percent

### **Setting**

*Position on landscape:* Zen—slightly concave areas and mounds on ridgetops and benches; Marlic—dissected plateaus; Laric—slightly convex areas and areas between mounds on dissected plateaus, ridgetops, and benches  
*Parent material:* Zen—loess; Marlic—loess, slope alluvium, residuum derived from basalt; Laric—loess, residuum derived from basalt  
*Slope range:* 3 to 15 percent  
*Elevation:* 1,800 to 2,700 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

### **Typical Profile**

#### **Zen**

0 to 10 inches—brown silt loam (surface layer)  
 10 to 16 inches—brown silty clay loam (upper part of subsoil)

16 to 22 inches—yellowish brown silty clay loam (middle part of subsoil)  
 22 to 27 inches—yellowish brown, calcareous clay loam (lower part of subsoil)  
 27 inches—basalt

#### **Marlic**

0 to 6 inches—brown loam (surface layer)  
 6 to 12 inches—brown clay loam (upper part of subsoil)  
 12 to 15 inches—dark yellowish brown clay loam (lower part of subsoil)  
 15 inches—basalt

#### **Laric**

0 to 3 inches—brown very gravelly loam (surface layer)  
 3 to 8 inches—yellowish brown gravelly clay loam (subsoil)  
 8 inches—basalt

### **Soil Properties and Qualities**

*Depth class:* Zen—moderately deep; Marlic—shallow; Laric—very shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Zen—high; Marlic—moderate; Laric—very low  
*Restriction to rooting depth:* Zen—basalt at a depth of 20 to 40 inches; Marlic—basalt at a depth of 12 to 20 inches; Laric—basalt at a depth of 5 to 12 inches

### **Contrasting Inclusions**

- Horseflat soils
- Benwy and Caliralls soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

#### **(Zen)**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Slight  
*Brush control:* Slight

#### **(Marlic)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock  
*Pipelines:* Severe—depth to bedrock  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Moderate—depth to bedrock  
*Brush control:* Slight

**(Laric)**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock  
*Pipelines:* Severe—depth to bedrock  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer  
*Brush control:* Moderate—rock fragments in surface layer

**198—Torrifluents complex, nearly level****Composition**

*Torrifluents, very cobbly, and similar soils—*  
 45 percent  
*Torrifluents, gravelly, and similar soils—*35 percent  
*Contrasting inclusions—*20 percent

**Setting**

*Position on landscape:* Flood plains  
*Parent material:* Alluvium  
*Slope range:* 0 to 2 percent  
*Elevation:* 500 to 1000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 50 to 53 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Representative Profile****Torrifluents, very cobbly**

0 to 2 inches—gray very cobbly very fine sandy loam (surface layer)  
 2 to 60 inches—gray and brown extremely cobbly sandy loam (substratum)

**Torrifluents, gravelly**

0 to 2 inches—gray gravelly very fine sandy loam (surface layer)  
 2 to 60 inches—gray and brown extremely gravelly sandy loam (substratum)

**Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Somewhat excessively drained  
*Permeability:* Moderately rapid  
*Available water capacity:* Low  
*Potential rooting depth:* More than 60 inches

*Frequency of flooding:* Frequent in February through May

**Contrasting Inclusions**

- Burbank soils
- Malaga soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer  
*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer  
*Livestock ponds:* Severe—depth to bedrock  
*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer  
*Brush control:* Severe—rock fragments in surface layer

**199—Haploxerolls complex, 3 to 5 percent slopes****Composition**

*Haploxerolls sandy loam and similar soils—*  
 50 percent  
*Haploxerolls silt loam and similar soils—*35 percent  
*Contrasting inclusions—*15 percent

**Setting**

*Position on landscape:* Flood plains  
*Parent material:* Alluvium  
*Slope range:* 3 to 5 percent  
*Elevation:* 500 to 1,000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 50 to 53 degrees F  
*Frost-free season (32 degrees F):* 130 to 170 days

**Representative Profile****Haploxerolls sandy loam**

0 to 14 inches—brown, calcareous sandy loam (surface layer)  
 14 to 60 inches—stratified, brown, calcareous fine sandy loam to light brownish gray, calcareous silt loam (substratum)

**Haploxerolls silt loam**

0 to 14 inches—grayish brown, calcareous silt loam (surface layer)

14 to 60 inches—stratified, brown calcareous fine sandy loam to pale brown calcareous silt loam (substratum)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability:* Moderate

*Available water capacity:* Very high

*Potential rooting depth:* More than 60 inches

*Frequency of flooding:* Rare

### **Contrasting Inclusions**

- Burbank soils
- Malaga soils

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Moderate

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—seepage

*Seeding:* Slight

*Brush control:* Slight

## **200—Malaga complex, 3 to 15 percent slopes**

### **Composition**

*Malaga, cobbly, and similar soils—*50 percent

*Malaga, stony, and similar soils—*35 percent

*Contrasting inclusions—*15 percent

### **Setting**

*Position on landscape:* Terraces, terrace escarpments

*Parent material:* Glacial outwash

*Slope range:* 3 to 15 percent

*Elevation:* 500 to 1,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 170 days

### **Typical Profile**

#### **Malaga, cobbly**

0 to 4 inches—brown cobbly sandy loam (upper part of surface layer)

4 to 9 inches—brown gravelly fine sandy loam (lower part of surface layer)

9 to 15 inches—pale brown very gravelly fine sandy loam (subsoil)

15 to 20 inches—light yellowish brown extremely gravelly loamy sand (upper part of substratum)

20 to 60 inches—multicolored extremely gravelly coarse sand (lower part of substratum)

#### **Malaga, stony**

0 to 4 inches—brown stony sandy loam (upper part of surface layer)

4 to 9 inches—brown gravelly fine sandy loam (lower part of surface layer)

9 to 15 inches—pale brown very gravelly fine sandy loam (subsoil)

15 to 20 inches—light yellowish brown extremely gravelly loamy sand (upper part of substratum)

20 to 60 inches—multicolored extremely gravelly coarse sand (lower part of substratum)

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid over very rapid

*Available water capacity:* Low

*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Burbank soils

### **Major Uses**

Military training, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Moderate—rock fragments in surface layer

*Pipelines:* Moderate—rock fragments in surface layer

*Livestock ponds:* Severe—seepage

*Seeding:* Moderate—rock fragments in surface layer, droughty surface layer

*Brush control:* Moderate—rock fragments in surface layer

## **201—Semal complex, 3 to 15 percent slopes**

### **Composition**

*Semal, cobbly, and similar soils—*30 percent

*Semal, very cobbly, and similar soils—*25 percent

*Semal, stony, and similar soils—*20 percent

*Contrasting inclusions—*25 percent

**Setting**

*Position on landscape:* Terraces, terrace escarpments

*Parent material:* Glacial outwash

*Slope range:* 3 to 15 percent

*Elevation:* 500 to 1,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 50 to 53 degrees F

*Frost-free season (32 degrees F):* 130 to 170 days

**Typical Profile****Semal, cobbly**

0 to 4 inches—brown cobbly sandy loam (surface layer)

4 to 9 inches—brown gravelly fine sandy loam (upper part of subsoil)

9 to 12 inches—brown very gravelly fine sandy loam (next part of subsoil)

12 to 26 inches—brown extremely gravelly loamy coarse sand (next part of subsoil)

26 to 55 inches—strongly cemented duripan

55 to 60 inches—light brownish gray extremely gravelly loamy coarse sand (lower part of subsoil)

**Semal, very cobbly**

0 to 5 inches—grayish brown very cobbly sandy loam (surface layer)

5 to 14 inches—grayish brown gravelly fine sandy loam (upper part of subsoil)

14 to 27 inches—light brownish gray extremely gravelly loamy coarse sand (middle part of subsoil)

27 to 55 inches—strongly cemented duripan

55 to 60 inches—light brownish gray extremely gravelly and cobbly loamy coarse sand (lower part of subsoil)

**Semal, stony**

0 to 4 inches—brown stony sandy loam (surface layer)

4 to 9 inches—brown gravelly fine sandy loam (upper part of subsoil)

9 to 13 inches—brown very gravelly fine sandy loam (next part of subsoil)

13 to 22 inches—brown extremely gravelly loamy coarse sand (next part of subsoil)

22 to 55 inches—strongly cemented duripan

55 to 60 inches—light brownish gray extremely gravelly loamy coarse sand (lower part of subsoil)

**Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderate over moderately rapid above the duripan

*Available water capacity:* Low

*Potential rooting depth:* More than 60 inches

**Contrasting Inclusions**

- Burbank soils
- Malaga soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

**202—Water**

This map unit consists of open water in the Columbia River.

**203—Pits**

*Description of areas:* Open excavations from which soil material and underlying sand and gravel have been removed

*Use:* Source of sand and gravel for roadfill and construction material such as concrete

*Vegetation:* Very little, if any

**204—Dam**

This map unit consists of dams constructed on the Columbia River.

**205—Arents, moderately steep****Composition**

*Arents and similar soils:* 100 percent

**Setting**

*Position on landscape:* Fill areas adjacent to excavations

*Parent material:* Alluvium

*Slope range:* 0 to 30 percent

*Elevation:* 500 to 1,000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Representative Profile**

0 to 60 inches—mixture of extremely gravelly sand, extremely gravelly loamy sand, and very cobbly coarse sand

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Somewhat excessively drained and excessively drained  
*Permeability:* Rapid  
*Available water capacity:* Low  
*Potential rooting depth:* More than 60 inches

## **206—Burbank loamy fine sand, 0 to 5 percent slopes**

### **Composition**

*Burbank and similar soils—*90 percent  
*Contrasting inclusions—*10 percent

### **Setting**

*Position on landscape:* Terrace escarpments  
*Parent material:* Glacial outwash  
*Slope range:* 0 to 5 percent  
*Elevation:* 600 to 1,000 feet  
*Average annual precipitation:* 6 to 9 inches  
*Average annual air temperature:* 49 to 51 degrees F  
*Frost-free season (32 degrees F):* 135 to 195 days

### **Typical Profile**

0 to 4 inches—brown loamy fine sand (surface layer)  
 4 to 17 inches—grayish brown gravelly loamy fine sand (upper part of subsoil)  
 17 to 23 inches—light brownish gray, calcareous gravelly loamy sand (lower part of subsoil)  
 23 to 60 inches—dark gray, calcareous extremely gravelly loamy sand (substratum)

### **Soil Properties and Qualities**

*Depth class:* Very deep  
*Drainage class:* Excessively drained  
*Permeability:* Rapid over very rapid  
*Available water capacity:* Very low  
*Potential rooting depth:* More than 60 inches

### **Contrasting Inclusions**

- Clenage soils
- Esquatzel and Weirman soils

- Aquolls
- Disage soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Severe—cutbanks cave  
*Livestock ponds:* Severe—seepage  
*Seeding:* Severe—droughty surface layer  
*Brush control:* Slight

## **207—Rock Creek very stony silt loam, 0 to 30 percent slopes**

### **Composition**

*Rock Creek and similar soils—*90 percent  
*Contrasting inclusions—*10 percent

### **Setting**

*Position on landscape:* Plateaus, ridgetops  
*Parent material:* Loess, residuum derived from basalt  
*Slope range:* 0 to 30 percent  
*Elevation:* 1,200 to 3,200 feet  
*Average annual precipitation:* 12 to 15 inches  
*Average annual air temperature:* 46 to 49 degrees F  
*Frost-free season (32 degrees F):* 120 to 170 days

### **Typical Profile**

0 to 2 inches—grayish brown very stony silt loam (surface layer)  
 2 to 10 inches—brown very cobbly clay (subsoil)  
 10 inches—fractured basalt

### **Soil Properties and Qualities**

*Depth class:* Shallow or very shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 8 to 20 inches

### **Contrasting Inclusions**

- Gorst and Clint soils
- Rock outcrop

### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

### **208—Kiona stony silt loam, 15 to 45 percent slopes**

#### **Composition**

*Kiona and similar soils—*80 percent

*Contrasting inclusions—*20 percent

#### **Setting**

*Position on landscape:* North-facing hillslopes

*Parent material:* Colluvium derived from basalt, loess

*Slope range:* 15 to 45 percent

*Elevation:* 500 to 2,000 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

#### **Typical Profile**

0 to 5 inches—brown stony silt loam (surface layer)

5 to 14 inches—pale brown very cobbly silt loam (subsoil)

14 to 60 inches—pale brown, calcareous very cobbly silt loam (substratum)

#### **Soil Properties and Qualities**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* More than 60 inches

#### **Contrasting Inclusions**

- Drino soils
- Haploxerolls and Orthents
- Rubble land
- Rock outcrop

#### **Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Severe—slope, rock fragments in surface layer

*Pipelines:* Severe—slope, rock fragments in surface layer

*Livestock ponds:* Severe—slope

*Seeding:* Severe—slope, stones on surface, rock fragments in surface layer

*Brush control:* Severe—slope, stones on surface, rock fragments in surface layer

### **209—Lickskillet very stony silt loam, 5 to 45 percent slopes**

#### **Composition**

*Lickskillet and similar soils—*90 percent

*Contrasting inclusions—*10 percent

#### **Setting**

*Position on landscape:* Plateaus, ridgetops

*Parent material:* Loess, residuum and colluvium derived from basalt

*Slope range:* 5 to 45 percent

*Elevation:* 1,500 to 3,200 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 46 to 49 degrees F

*Frost-free season (32 degrees F):* 120 to 150 days

#### **Typical Profile**

0 to 3 inches—grayish brown very stony silt loam (surface layer)

3 to 12 inches—brown very gravelly loam and silt loam (upper part of subsoil)

12 to 20 inches—yellowish brown very cobbly loam (lower part of subsoil)

20 inches—fractured basalt

#### **Soil Properties and Qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Restriction to rooting depth:* Basalt at a depth of 12 to 20 inches

#### **Contrasting Inclusions**

- Rock Creek and Kiona soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer

**210—Starbuck-Rock outcrop complex, 0 to 45 percent slopes****Composition**

*Starbuck and similar soils*—50 percent

*Rock outcrop*—25 percent

*Contrasting inclusions*—25 percent

**Setting**

*Position on landscape:* Hillslopes

*Parent material:* Starbuck—loess, colluvium, alluvium; Rock outcrop—basalt

*Slope range:* 0 to 45 percent

*Elevation:* 500 to 1,200 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

**Starbuck****Typical profile**

0 to 6 inches—brown silt loam (surface layer)

6 to 16 inches—pale brown fine sandy loam (subsoil)

16 inches—basalt

**Soil properties and qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Restriction to rooting depth:* Basalt at a depth of 12 to 20 inches

**Rock Outcrop**

Exposures of barren basalt

**Contrasting Inclusions**

- Nevo soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer

*Brush control:* Slight

**211—Starbuck-Rock outcrop complex, 45 to 60 percent slopes****Composition**

*Starbuck and similar soils*—50 percent

*Rock outcrop*—25 percent

*Contrasting inclusions*—25 percent

**Setting**

*Position on landscape:* Hillslopes

*Parent material:* Starbuck—loess, colluvium, alluvium; Rock outcrop—basalt

*Slope range:* 45 to 60 percent

*Elevation:* 500 to 1,200 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free season (32 degrees F):* 135 to 195 days

**Starbuck****Typical profile**

0 to 6 inches—brown silt loam (surface layer)

6 to 16 inches—pale brown fine sandy loam (subsoil)

16 inches—basalt

**Soil properties and qualities**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Restriction to rooting depth:* Basalt at a depth of 12 to 20 inches

**Rock Outcrop**

Exposures of barren basalt

**Contrasting Inclusions**

- Nevo soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* Moderate

*Corrosivity (concrete):* Low

*Fences:* Severe—depth to bedrock

*Pipelines:* Severe—depth to bedrock

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface layer

*Brush control:* Slight

**212—Willis silt loam, 2 to 5 percent slopes****Composition**

*Willis and similar soils:* 90 percent

*Contrasting inclusions:* 10 percent

**Setting**

*Position on landscape:* Uplands

*Parent material:* Loess

*Slope range:* 2 to 5 percent

*Elevation:* 1,200 to 2,500 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 125 to 160 days

**Typical Profile**

0 to 6 inches—grayish brown silt loam (surface layer)

6 to 22 inches—brown silt loam (subsoil)

22 to 34 inches—brown and pale brown, calcareous silt loam (substratum)

34 to 38 inches—duripan

38 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate above the hardpan

*Available water capacity:* Moderately high

*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Starbuck soils
- Benwy soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

**Livestock Grazing****Development limitations**

*Corrosivity (uncoated steel):* High

*Corrosivity (concrete):* Low

*Fences:* Slight

*Pipelines:* Slight

*Livestock ponds:* Moderate—depth to hardpan, slope

*Seeding:* Slight

*Brush control:* Slight

**213—Willis silt loam, 5 to 8 percent slopes****Composition**

*Willis and similar soils:* 90 percent

*Contrasting inclusions:* 10 percent

**Setting**

*Position on landscape:* Uplands

*Parent material:* Loess

*Slope range:* 5 to 8 percent

*Elevation:* 1,200 to 2,500 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free season (32 degrees F):* 125 to 160 days

**Typical Profile**

0 to 6 inches—grayish brown silt loam (surface layer)

6 to 22 inches—brown silt loam (subsoil)

22 to 34 inches—brown and pale brown, calcareous silt loam (substratum)

34 to 38 inches—duripan

38 inches—basalt

**Soil Properties and Qualities**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate above the hardpan

*Available water capacity:* Moderately high

*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

**Contrasting Inclusions**

- Starbuck soils
- Benwy soils

**Major Uses**

Military training, livestock grazing, wildlife habitat

### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low  
*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Moderate—depth to hardpan, slope  
*Seeding:* Slight  
*Brush control:* Slight

#### **214—Willis silt loam, 8 to 15 percent slopes**

##### **Composition**

*Willis and similar soils:* 90 percent  
*Contrasting inclusions:* 10 percent

##### **Setting**

*Position on landscape:* Uplands  
*Parent material:* Loess  
*Slope range:* 8 to 15 percent  
*Elevation:* 1,200 to 2,500 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 125 to 160 days

##### **Typical Profile**

0 to 6 inches—grayish brown silt loam (surface layer)  
 6 to 22 inches—brown silt loam (subsoil)  
 22 to 34 inches—brown and pale brown, calcareous silt loam (substratum)  
 34 to 38 inches—duripan  
 38 inches—basalt

##### **Soil Properties and Qualities**

*Depth class:* Moderately deep  
*Drainage class:* Well drained  
*Permeability:* Moderate above the hardpan  
*Available water capacity:* Moderately high  
*Restriction to rooting depth:* Hardpan at a depth of 20 to 40 inches

##### **Contrasting Inclusions**

- Starbuck soils
- Benwy soils

##### **Major Uses**

Military training, livestock grazing, wildlife habitat

##### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* High  
*Corrosivity (concrete):* Low

*Fences:* Slight  
*Pipelines:* Slight  
*Livestock ponds:* Moderate—depth to hardpan, slope  
*Seeding:* Slight  
*Brush control:* Slight

#### **215—Bakeoven very cobbly silt loam, 0 to 30 percent slopes**

##### **Composition**

*Bakeoven and similar soils:* 75 percent  
*Contrasting inclusions:* 25 percent

##### **Setting**

*Position on landscape:* Ridgetops, benches  
*Parent material:* Loess, residuum derived from basalt  
*Slope range:* 0 to 30 percent  
*Elevation:* 1,500 to 3,200 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 50 degrees F  
*Frost-free season (32 degrees F):* 135 to 150 days

##### **Typical Profile**

0 to 4 inches—brown very cobbly silt loam (surface layer)  
 4 to 7 inches—dark yellowish brown very gravelly clay loam (upper part of subsoil)  
 7 to 10 inches—dark yellowish brown very gravelly clay loam (lower part of subsoil)  
 10 inches—basalt

##### **Soil Properties and Qualities**

*Depth class:* Very shallow  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Low  
*Restriction to rooting depth:* Basalt at a depth of 4 to 12 inches

##### **Contrasting Inclusions**

- Lickskillet and Starbuck soils

##### **Major Uses**

Military training, livestock grazing, wildlife habitat

##### **Livestock Grazing**

#### **Development limitations**

*Corrosivity (uncoated steel):* Moderate  
*Corrosivity (concrete):* Low  
*Fences:* Severe—depth to bedrock, rock fragments in surface layer

*Pipelines:* Severe—depth to bedrock, rock fragments  
in surface layer

*Livestock ponds:* Severe—depth to bedrock

*Seeding:* Severe—depth to bedrock, droughty surface  
layer, rock fragments in surface layer

*Brush control:* Severe—rock fragments in surface layer



# Use and Management of the Soils

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This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock or wetness can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

## Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for

field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system (USDA 1961), soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

*Capability classes*, the broadest groups, are designated by numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

*Capability subclasses* are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil

interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

## Rangeland

Richard A. Pudney, area range conservationist, Natural Resources Conservation Service, assisted in writing this section.

Excluding the containment area and several small outlying developments, the entire 325,616 acres of the survey area is rangeland. The primary use of the land is military training. Other major uses are wildlife habitat and grazing by cattle and sheep. The combined effects of these uses on the soil and vegetation in the area directly influence the quality and quantity of the water draining from the area. Grazing and military training occur throughout the year, but use is most extensive in spring, summer, and fall. Some areas have been designated as "impact areas." Access is restricted and livestock grazing is prohibited in these areas.

The primary resource management concerns in the survey area include maintaining adequate plant cover to prevent excessive soil erosion, providing adequate hiding, thermal, and nesting cover for wildlife, optimizing forage production and composition of palatable species for livestock grazing and wildlife habitat, and balancing and coordinating use of the area for military training, grazing, and wildlife habitat to minimize conflicts.

Military activities can have severe, long-term impacts on vegetation and soils. Excessive use of wheeled and tracked vehicles and bivouacking can reduce or destroy plant cover and cause soil compaction, resulting in a reduced water infiltration rate and an increased risk of erosion in disturbed areas. Weapons training commonly results in a high frequency of fires, which reduce plant cover and vigor and can eventually cause a change in species composition to less desirable species for wildlife habitat, forage, and protection of the watershed. All uses and their interacting impacts should be considered in the development of short-term and long-term operational plans for the survey area.

Forage production is influenced by the amount of precipitation, length of growing season, and available water capacity of the soil. Areas at the lower elevations receive less precipitation; thus, forage production is fairly low. At the higher elevations or in areas that have a north aspect, production increases as a result of increased available moisture. The soil depth and texture also affect the available water capacity at both the lower and higher elevations. Shallow soils have a lower available water capacity and produce less forage than do deep soils, which generally have a higher available water capacity.

The basic soil and plant resources of the survey area can be maintained or improved through proper management. Among the management practices important for all rangeland in the area are proper grazing use and use of planned grazing systems, including deferred grazing, proper season of use, and good distribution of grazing. The distribution of grazing can be improved by proper placement of watering facilities and salt and by fencing. The suitability of range development and improvement practices such as brush management, range seeding, fencing, and stock water developments depends on the characteristics of a given soil.

Livestock graze the palatable and nutritious plants intensively. Unless proper grazing management is applied, these preferred plants can become depleted. As the abundance of preferred plants decreases, the abundance of less palatable plants increases. Over time the less palatable plants also will become depleted and unpalatable grasses, weeds, shrubs, and annual plants will invade. Rangeland that consists dominantly of unpalatable plants produces only a fraction of the usable forage it is capable of producing and supports far fewer livestock than its potential.

Sound range management consists of practices such as balancing the requirements of livestock and wildlife with the forage available, proper grazing use and distribution, and periodically resting the preferred and less palatable vegetation from grazing during the growing season.

In determining the number of livestock an area can support, it is essential to know how much of the area will be used by the animals. Stock water commonly is a key factor. Livestock in level or gently sloping areas generally make good use of vegetation that is as much as 1 mile from water, but in very steep areas they might not travel more than  $\frac{1}{4}$  mile from water. Development of stock water in underused areas improves the use of the forage in these areas and reduces use in overgrazed areas. Placing salt blocks in undergrazed areas also helps to entice livestock away from overused areas and increases use of

isolated areas. Cross-fencing is another effective way to improve livestock distribution, but it should be used in combination with stock water developments and other management practices.

Periodic rest from grazing during the growing season allows the preferred and less palatable vegetation to build up root reserves and improves plant vigor and production. Various rotation grazing systems can be used to ensure that each pasture gets periodic rest from grazing during the growing season. Such systems can be tailored to meet the needs of any ranching operation.

Proper grazing use is essential to any grazing operation. Enough of the plant must be left following grazing to allow it to continue to manufacture its own nutrients. This process, called photosynthesis, depends on the leaves of the plant to absorb carbon dioxide, an essential element in the process. When all of the leaves are removed by close grazing, the plant has to use the nutrient reserves stored in its root system to continue to grow and survive. If a plant is continuously overgrazed, its store of nutrients in the root system will eventually be depleted and the plant will die. Proper grazing use ensures that the plant can continue to manufacture nutrients. Good management leads to productive, healthy forage plants that have root systems strong enough to survive through unfavorable years.

Table 5 shows, for each soil that supports rangeland vegetation suitable for grazing, the ecological site; the potential annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in the table follows.

An *ecological site* is a distinctive kind of rangeland that produces a characteristic natural plant community that differs from natural plant communities on other ecological sites in kind, amount, and proportion of range plants. The relationship between soils and vegetation was ascertained during this survey; thus, ecological sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table are also important.

*Total dry-weight production* is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include

the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

*Characteristic vegetation*—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. Under *composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community, the better the range condition. Range condition is an ecological rating only.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

## Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly

on a well prepared site and maintained in good condition.

Table 6 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

## Recreation

The soils of the survey area are rated in table 7 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 10 and interpretations for dwellings without basements and for local roads and streets in table 9.

*Camp areas* require site preparation, such as shaping and leveling the tent and parking areas,

stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

*Playgrounds* require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

*Paths and trails* for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

*Golf fairways* are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

## Wildlife Habitat

The survey area is dominantly native rangeland that supports abundant wildlife. The area supports one of the few remaining sage grouse populations in the state. Bald eagle winter in the area, and golden eagle use the area year-round. Great horned owl, red-tailed hawk, marsh hawk, and American kestrel are common. Rough-legged hawk is abundant in winter, and ferruginous hawk have been sighted in the area as well as a few prairie falcon. Many other native bird species, including sharp-tailed grouse, long-billed curlew, burrowing owl, western

meadowlark, short-eared owl, California quail, Brewer's sparrow, and sage sparrow use the area. Major introduced bird species are Hungarian partridge, chukar, and ring-necked pheasant.

Relatively large numbers of mule deer are in the area. Elk are also present. Yellow-bellied marmot, coyote, badger, jackrabbit, and cottontail rabbit also inhabit the area. Smaller mammals include Townsend's ground squirrel, sagebrush vole, and Merriam's shrew. Attempts to introduce the pronghorn antelope to the area have been unsuccessful. Desert bighorn sheep were successfully introduced in an area west of the survey area, across the Yakima River. Occasionally, these sheep can be found on the western edge of the survey area.

Range fires, vehicle use, and past heavy livestock grazing have altered much of the original sagebrush/bluebunch wheatgrass/Sandberg bluegrass plant community that was dominant in the survey area. Most of the damage is on the valley bottoms, along the riparian areas, and on toeslopes of the major ridges because these areas are accessible to both livestock and military troops. The soils in these areas are deeper and support relatively lush stands of sagebrush and grass; therefore, they have the highest potential for wildlife habitat. Sage grouse are extremely dependent on heavy sagebrush stands for habitat in winter, on riparian and meadow habitat for brood rearing, and on openings in sagebrush stands as strutting grounds, or leks, for mating. Destruction of any one of these habitat components can have a pronounced adverse impact on the sage grouse population. Mule deer, eagles, owls, hawks, California quail, Hungarian partridge, coyote, cottontail rabbit, and other animals also depend on this habitat for all or part of their life cycle.

There are numerous opportunities to improve wildlife habitat on the valley bottoms and toeslopes and in riparian areas. Installation of small drop structures, such as gabions or small rock and brush dams, in the drainageways is needed to begin the restoration of riparian habitat. Monitoring and improving grazing systems along with fencing in critical stretches of streams to exclude both livestock and vehicles also helps in the recovery of riparian areas. Fire control allows sagebrush to become re-established in critical areas and slows the invasion of weeds. Improving coordination of military troop activities with soil conditions, such as using areas of shallow soils in summer and fall instead of in spring when the soils are saturated, minimizes damage to the soils and vegetation and thus has a beneficial effect on wildlife habitat. Protection of known leks, an essential habitat element for sage

grouse, is needed if they are to continue to inhabit the area.

Ridges and steep, rocky hillslopes support habitat for wildlife such as chukar, mule deer, marmots, raptors, elk, and many other species. Chukar and marmots are primarily dependent on rock ridges and hillslopes for their entire life cycle, but deer, elk, and raptors use these areas for only a part of their life cycle. Because of the steepness of slope and the content of rock fragments in the surface layer of the soils, grazing and military training are less common in these areas than on the valley bottoms. Limiting the number of trails going straight up and down the steep slopes minimizes soil erosion and downslope soil movement and thereby reduces siltation of the lower-lying areas and the accompanying loss of habitat.

Planting trees and shrubs in areas of favorable moisture provides habitat for many species of wildlife. Where the native vegetation has been destroyed, revegetate with seed mixtures that include bluebunch wheatgrass, Sherman big bluegrass, alfalfa, native forbs, and other plant species that are preferred by wildlife and are adapted to the harsh soil and climatic conditions in the survey area.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 8, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or

maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

*Grain and seed crops* are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are wheat and barley.

*Grasses and legumes* are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are Idaho fescue, bluebunch wheatgrass, and alfalfa.

*Wild herbaceous plants* are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, and lupine.

*Hardwood trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are cottonwood and willow.

*Coniferous plants* furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are ponderosa pine and Rocky Mountain juniper.

*Shrubs* are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are antelope bitterbrush, redosier dogwood, and big sagebrush.

*Wetland plants* are annual and perennial wild herbaceous plants that grow on moist or wet sites.

Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, cattail, saltgrass, rushes, and sedges.

*Shallow water areas* have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

*Habitat for openland wildlife* consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

*Habitat for wetland wildlife* consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, and beaver.

*Habitat for rangeland wildlife* consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include mule deer, chukar, sage grouse, and coyote.

## Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, water management, and wheeled vehicle use. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils*

or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

### **Building Site Development**

Table 9 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated

use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

*Dwellings and small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

### Sanitary Facilities

Table 10 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or

fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

*Sanitary landfills* are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and

boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

### Construction Materials

Table 11 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good*, *fair*, or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

*Sand* and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

### Water Management

Table 12 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

*Pond reservoir areas* hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The

seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

*Embankments, dikes, and levees* are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

*Drainage* is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

*Irrigation* is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of

the root zone, the amount of salts or sodium, and soil reaction.

*Terraces and diversions* are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

*Grassed waterways* are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

### **Wheeled Vehicle Use**

Table 13 shows the degree and kind of soil limitations that affect use of heavy wheeled vehicles. The ratings apply to the soils in their natural state; they

do not apply to areas that have been altered by cut and fill operations. A rating of *slight* indicates that the limitations are minor or easily overcome; *moderate* indicates that some modification in management or in the kind of equipment is needed; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard if heavy wheeled vehicles are used.

The ratings are based on soil features, including slope, wetness, the hazard of water erosion, dustiness, and the hazard of wind erosion. Slope influences the ease of using vehicles. Slopes of less than 15 percent are considered a slight limitation. Wetness influences the susceptibility of the soil to the formation of ruts or grooves and to compaction. Wetness is influenced by the depth of the soil to basalt or to a hardpan and the content of clay. Considered in the hazard of water erosion feature was the soil erodibility factor K, the time of year, and the soil moisture content. Dustiness is the risk of soil particles becoming detached by vehicular use, resulting in a thick layer of loose soil particles. Considered in the dustiness feature was soil texture, content of rock fragments, time of year, and soil moisture content. Considered in the hazard of wind erosion feature was the soil texture, content of rock fragments, time of year, and soil moisture content.



# Soil Properties

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Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

## Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

*Depth* to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

*Texture* is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that

is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

*Classification* of the soils is determined according to the Unified soil classification system (ASTM 1993, PCA 1973) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO 1986, PCA 1973).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

*Rock fragments* larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area

and in nearby areas and on estimates made in the field.

*Liquid limit* and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

## Physical Properties

Table 15 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $1/3$ - or  $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk

density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Permeability* ( $K_{sat}$ ) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity ( $K_{sat}$ ). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Linear extensibility* refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In the

table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

*Erosion factors* are shown in the table as the K factor ( $K_w$  and  $K_f$ ) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor  $K_w$*  indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

*Erosion factor  $K_f$*  indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

*Erosion factor T* is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

*Wind erodibility groups* are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

*Wind erodibility index* is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

## Chemical Properties

Table 16 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in

the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Cation-exchange capacity* is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

*Soil reaction* is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

*Calcium carbonate equivalent* is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

*Gypsum* is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

*Salinity* is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

*Sodium adsorption ratio (SAR)* is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased

dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

## Water Features

Table 17 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

*Water table* refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic

features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

*Flooding* is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

*Duration* and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on

the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

## Soil Features

Table 18 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

*Potential for frost action* is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation

or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.



# Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA 1975). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

**SUBORDER.** Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll (*Xer*, meaning dry, plus *oll*, from Mollisol).

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Palexerolls (*Pale*, meaning old, plus *xeroll*, the suborder of the Mollisols that has a xeric moisture regime).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Palexerolls.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is clayey-skeletal, montmorillonitic, mesic Typic Palexerolls.

## Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical or representative of the unit in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (USDA 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (USDA 1975) and in "Keys to Soil Taxonomy" (USDA 1994). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

## Aquolls

Aquolls consists of moderately deep to very deep, poorly drained and somewhat poorly drained soils that formed in alluvium. These soils are in channels on flood plains. Slopes are 0 to 5 percent. Elevation is 500 to 2,500 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 48 to 53 degrees F, and the frost-free season is 130 to 195 days.

Representative pedon of Aquolls in an area of Esquatzel-Aquolls-Weirman complex, channeled, 0 to 5 percent slopes, about 10<sup>1</sup>/<sub>2</sub> miles southwest of Vantage, Washington; about 2,900 feet south and 700

feet west of the northeast corner of sec. 4, T. 16 N., R. 21 E.; USGS Boyleston topographic quadrangle; latitude 46°54'17" N., longitude 120°11'40" W.

A—0 to 6 inches; dark grayish brown (10YR 4/2) cobbly fine sandy loam, black (10YR 2/1) moist; moderate medium platy structure parting to moderate fine and medium granular; slightly hard, very friable, nonsticky and nonplastic; many fine and medium roots; many fine and medium interstitial and tubular pores; few faint iron stains on faces of pedis; 10 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

Bg1—6 to 10 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine and medium roots; common fine and medium interstitial and tubular pores; common faint iron stains on faces of pedis; 15 percent pebbles and 5 percent cobbles; neutral; abrupt wavy boundary.

2Bg2—10 to 20 inches; grayish brown (10YR 5/2) extremely gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and medium roots; common fine and medium interstitial pores; common distinct iron stains on faces of pedis; 45 percent pebbles and 20 percent cobbles; slightly alkaline; clear wavy boundary.

3Bg3—20 to 60 inches; grayish brown (10YR 5/2) extremely gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few fine and medium roots; common fine and medium interstitial pores; common distinct iron stains on sand grains and pebbles; 45 percent pebbles, 15 percent cobbles, and 5 percent stones; slightly alkaline.

Depth to the very gravelly or extremely gravelly 2Bg horizon is 4 to 10 inches. Thickness of the mollic epipedon is 40 to 60 inches. Depth to basalt is more than 20 inches. Depth to an apparent water table is 0 to 18 inches. Frequent, brief periods of flooding occur in January through May.

The A horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 1 or 2 dry or moist.

The Bg horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 1 or 2 dry. It is gravelly sandy loam, very gravelly loam, or very cobbly loam.

The 2Bg and 3Bg horizons have value of 4 or 5 dry and 2 or 3 moist, and they have chroma of 2 or 3 dry or moist. The 2Bg horizon is extremely gravelly sandy loam, gravelly loam, or very gravelly sandy loam. The

3Bg horizon is extremely gravelly loamy sand, very gravelly loamy sand, or extremely gravelly sand.

## Arents

Arents consists of very deep, somewhat excessively drained and excessively drained soils that formed in fill material from dam construction. These soils are in areas adjacent to excavations. Slopes are 0 to 30 percent. Elevation is 500 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Representative pedon of Arents, moderately steep, about 1,980 feet west and 1,350 feet north of the southeast corner of sec. 20, T. 16 N., R. 23 E.; USGS Beverly topographic quadrangle; latitude 46°52'1" N., longitude 119°58'17" W.

C—0 to 60 inches; dark gray (10YR 4/1) extremely gravelly coarse sand, very dark gray (10YR 3/1) moist; single grain; loose; about 45 percent pebbles and 25 percent cobbles; underside of some rock fragments coated with lime and silica; strongly effervescent; slightly alkaline.

The C horizon has value of 4 to 7 dry and 3 to 5 moist, and it has chroma of 1 to 3 dry or moist. It is very cobbly coarse sand, extremely gravelly sand, or extremely gravelly loamy sand. It is slightly alkaline or moderately alkaline. It is 35 to 70 percent rock fragments.

## Argabak Series

The Argabak series consists of very shallow and shallow, well drained soils that formed in loess and in residuum derived from basalt. These soils are on ridgetops, hillslopes, and benches. Slopes are 3 to 30 percent. Elevation is 1,800 to 4,200 feet. The average annual precipitation is 9 to 15 inches, the average annual air temperature is 46 to 50 degrees F, and the frost-free season is 120 to 170 days.

Typical pedon of Argabak very cobbly loam, 3 to 15 percent slopes, about 9 miles south of Kittitas, Washington; 300 feet south and 2,200 feet east of northwest corner of sec. 29, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°51'07" N., longitude 120°21'02" W.

A—0 to 2 inches; yellowish brown (10YR 5/4) very cobbly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 25 percent pebbles

and 25 percent cobbles; neutral; abrupt wavy boundary.

Bt—2 to 6 inches; brown (10YR 4/3) extremely gravelly loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; common distinct clay films on faces of peds; 50 percent pebbles and 20 percent cobbles; neutral; abrupt wavy boundary.

2R—6 inches; fractured basalt.

Thickness of the solum and depth to basalt are 5 to 12 inches. The profile is neutral or slightly alkaline throughout.

The A horizon has value of 3 to 5 dry or moist, and it has chroma of 2 to 4 dry or moist. It is extremely cobbly loam, very cobbly loam, or very stony loam.

The Bt horizon has value of 3 to 5 dry or moist, and it has chroma of 2 to 4 dry or moist. It is extremely gravelly loam, very gravelly clay loam, or very cobbly loam. It has moderate fine subangular blocky structure to weak medium subangular blocky structure.

## Argids

Argids consists of very deep, well drained soils that formed in alluvium. These soils are on terraces. Slopes are 3 to 30 percent. Elevation is 500 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and frost-free season is 135 to 195 days.

Representative pedon of Argids, strongly sloping, about 1,980 feet west and 1,350 feet north of the southeast corner of sec. 20, T. 14 N., R. 23 E.; USGS Priest Rapids topographic quadrangle; latitude 46°40'58" N., longitude 119°57'53" W.

A—0 to 4 inches; brown (10YR 5/3) gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few coarse roots; 15 percent pebbles; neutral; clear smooth boundary.

Bt1—4 to 10 inches; brown (10YR 5/3) cobbly sandy clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few coarse roots; 15 percent cobbles and 10 percent pebbles; common distinct clay films on faces of peds; neutral; clear smooth boundary.

Bt2—10 to 15 inches; brown (10YR 5/3) very cobbly sandy clay loam, dark grayish brown (10YR 4/2)

moist; strong coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, sticky and plastic; common very fine and fine roots; 25 percent cobbles and 15 percent pebbles; common faint clay films on faces of peds; neutral; clear smooth boundary.

Bt3—15 to 24 inches; light brownish gray (10YR 6/2) very cobbly sandy clay loam, grayish brown (10YR 5/2) moist; moderate coarse prismatic structure; slightly hard, friable, sticky and plastic; few very fine roots; 35 percent cobbles and 25 percent pebbles; common faint clay films on faces of peds; slightly alkaline; clear smooth boundary.

2C1—24 to 30 inches; light gray (10YR 7/2) very cobbly loamy sand, grayish brown (10YR 5/2) moist; weak coarse prismatic structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; 20 percent cobbles and 15 percent pebbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.

2C2—30 to 60 inches; grayish brown (10YR 5/2) very cobbly sand, very dark grayish brown (10YR 3/2) moist; single grain; loose; 20 percent cobbles and 15 percent pebbles; slightly alkaline.

Depth to the 2C horizon is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is gravelly loamy sand or sandy loam.

The Bt horizon has value of 4 to 6 dry and 3 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is cobbly sandy clay loam, very cobbly sandy clay loam, or gravelly sandy clay loam. It is neutral or slightly alkaline.

The 2C horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. It is very cobbly sand, very cobbly loamy sand, or very gravelly sand. It is slightly alkaline or moderately alkaline.

## Argixerolls

Argixerolls consists of very deep, well drained soils that formed in loess and alluvium. These soils are on old alluvial fan escarpments. Slopes are 30 to 60 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Representative pedon of Argixerolls silt loam in an area of Argixerolls-Durixerolls complex, steep north, about 400 feet north and 150 feet west of the southeast corner of sec. 20, T. 14 N., R. 22 E.;

USGS Black Rock Spring NE topographic quadrangle; latitude 46°40'49" N., longitude 120°05'04" W.

- A—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, very dark gray (10YR 3/1) moist; weak medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine and fine pores; 10 percent pebbles; neutral; clear wavy boundary.
- AB—5 to 15 inches; dark grayish brown (10YR 4/2) silt loam, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine and fine pores; 10 percent pebbles; neutral; clear wavy boundary.
- Bt1—15 to 25 inches; brown (10YR 4/3) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, sticky and plastic; few very fine and fine roots; common fine tubular pores and few fine irregular pores; few faint clay films lining pores; 10 percent pebbles; neutral; clear wavy boundary.
- Bt2—25 to 43 inches; brown (10YR 4/3) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, sticky and plastic; few fine roots; common distinct clay films on faces of peds and lining pores; few fine tubular and irregular pores; 10 percent pebbles; neutral; clear wavy boundary.
- 2Bt3—43 to 60 inches; brown (10YR 4/3) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, sticky and plastic; few fine roots; few fine tubular and irregular pores; common distinct clay films on faces of peds and lining pores; 15 percent cobbles and 35 percent pebbles; neutral.

The mollic epipedon is 15 to 60 inches thick, and it includes part of the argillic horizon.

The A and AB horizons have value of 4 or 5 dry and 2 or 3 moist, and they have chroma of 1 to 3 dry or moist. The A horizon is silt loam or cobbly clay loam.

The Bt and 2Bt horizons have value of 4 or 5 dry and 3 or 4 moist, and they have chroma of 2 or 3 dry or moist. The Bt horizon is silty clay loam or clay loam, and the 2Bt horizon is very gravelly clay loam, clay, or gravelly clay loam. The horizons are neutral to moderately alkaline.

## Bakeoven Series

The Bakeoven series consists of very shallow and shallow, well drained soils that formed in loess and in residuum derived from basalt. These soils are on ridgetops and benches. Slopes are 0 to 30 percent. Elevation is 1,500 to 3,200 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 135 to 150 days.

Typical pedon of Bakeoven very cobbly silt loam, 0 to 30 percent slopes, about 10 miles north of Sunnyside, Washington; 1,600 feet north and 300 feet east of the southwest corner of sec. 6, T. 11 N., R. 23 E.; USGS Sulphur Spring topographic quadrangle; latitude 46°27'57" N., longitude 119°59'50" W.

- A—0 to 4 inches; brown (10YR 5/3) very cobbly silt loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; few fine tubular pores; 15 percent pebbles and 35 percent cobbles; neutral; abrupt wavy boundary.
- Bw1—4 to 7 inches; dark yellowish brown (10YR 4/4) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; common very fine roots; few fine tubular pores; 25 percent pebbles and 10 percent cobbles; neutral; abrupt wavy boundary.
- Bw2—7 to 10 inches; dark yellowish brown (10YR 4/4) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine angular blocky structure; hard, firm, sticky and plastic; few very fine roots; few fine tubular pores; 40 percent pebbles and 15 percent cobbles; neutral; abrupt wavy boundary.
- 2R—10 inches; fractured basalt.

Depth to basalt is 4 to 10 inches. The solum has hue of 10YR or 7.5YR, and it averages more than 45 percent rock fragments.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The Bw horizon has value of 4 or 5 dry and 2 or 3 moist. It is very gravelly clay loam, very gravelly loam, or very cobbly loam.

## Benwy Series

The Benwy series consists of soils that are deep and very deep to a duripan and are well drained. These soils formed in loess and slope alluvium. They

are on alluvial fans, hillslopes, toeslopes, and benches. Slopes are 3 to 30 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Benwy silt loam, 5 to 10 percent slopes (fig. 4), about 9 miles southeast of Kittitas, Washington; 150 feet south and 700 feet east of the northwest corner of sec. 26, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°51'09" N., longitude 120°17'36" W.

A—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; neutral; abrupt wavy boundary.

AB—4 to 10 inches; dark yellowish brown (10YR 4/4) silt loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; 5 percent pebbles; neutral; clear wavy boundary.

Bt1—10 to 22 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; few manganese concretions; few faint clay films lining pores; 5 percent pebbles; neutral; clear wavy boundary.

Bt2—22 to 37 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; few faint clay films lining pores; 5 percent pebbles; slightly alkaline; clear wavy boundary.

Bk1—37 to 46 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common distinct light gray (10YR 7/2) coatings of lime on faces of peds and lining pores; common very fine and few fine roots; common very fine tubular pores; common fine manganese concretions; 5 percent pebbles; violently effervescent; strongly alkaline; clear wavy boundary.

Bk2—46 to 60 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist;

moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; common fine manganese concretions; few distinct light gray (10YR 7/2) coatings of lime lining pores; 20 percent pebbles; strongly effervescent; moderately alkaline.

The mollic epipedon is 10 to 19 inches thick. Depth to secondary lime is 24 to 38 inches. Depth to the duripan is 40 to 60 inches or more.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist.

The AB horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is loam or silt loam. It is neutral or slightly alkaline.

The Bt horizon has value of 5 or 6 dry and chroma of 3 or 4 dry or moist. It is loam, silt loam, gravelly silt loam, gravelly loam, or clay loam. It is neutral or slightly alkaline.

The Bk horizon and the Btk horizon, where present, have value of 5 or 6 dry and 4 or 5 moist, and they have chroma of 3 or 4 dry or moist. They are gravelly loam, loam, gravelly silt loam, or gravelly clay loam. They are slightly alkaline to strongly alkaline.

The 2Bkqm/C horizon, where present, consists of weakly cemented and indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

A Bqk horizon of very gravelly loam is above the indurated duripan in some pedons.

## Blint Series

The Blint series consists of moderately deep, well drained soils that formed in colluvium derived from basalt and in loess mixed with volcanic ash in the upper part. These soils are on north-facing hillslopes. Slopes are 15 to 60 percent. Elevation is 2,500 to 3,300 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 49 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Blint very cobbly loam in an area of Wockum-Blint-Windry complex, 45 to 60 percent slopes, about 23 miles east of Selah, Washington; 2,000 feet south and 2,600 feet west of the northeast corner of sec. 30, T. 14 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°40'26" N., longitude 120°07'00" W.

A1—0 to 6 inches; brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic;

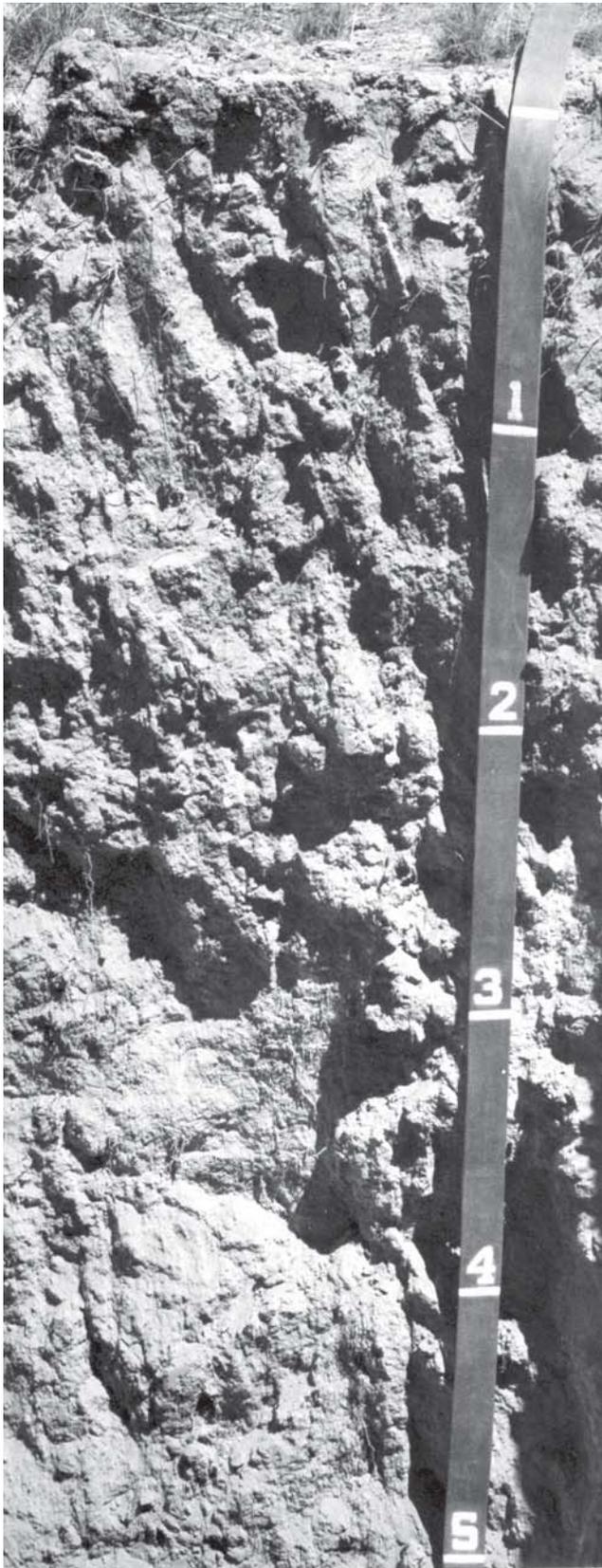


Figure 4.—Typical pedon of Benwy silt loam, 5 to 10 percent slopes.

many very fine roots; common very fine tubular pores and common very fine vesicular pores; 20 percent pebbles and 25 percent cobbles; neutral; clear wavy boundary.

A2—6 to 14 inches; brown (10YR 4/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine tubular and vesicular pores; 45 percent pebbles and 10 percent cobbles; neutral; abrupt wavy boundary.

2Bt1—14 to 22 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common very fine and few fine roots; many very fine tubular pores and few fine vesicular pores; few faint clay films lining pores; 45 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

2Bt2—22 to 37 inches; yellowish brown (10YR 5/4) extremely gravelly loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and plastic; common very fine and few fine roots; many very fine tubular pores; few faint clay films lining pores; 50 percent pebbles and 20 percent cobbles; neutral; clear wavy boundary.

3R—37 inches; basalt.

Depth to basalt is 20 to 40 inches. The mollic epipedon is 20 to 25 inches thick, and it includes part of the argillic horizon.

The A horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. The A2 horizon is very gravelly loam or very gravelly silt loam.

The 2Bt horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. The upper part is very gravelly loam or very gravelly silt loam, and the lower part is extremely cobbly silt loam, extremely gravelly loam, or very cobbly clay loam.

### Brehm Series

The Brehm series consists of soils that are moderately deep to a duripan and are well drained. These soils formed in loess and alluvium. They are on alluvial fans. Slopes are 5 to 10 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Brehm silt loam, 5 to 10 percent slopes, about 17 miles east of Moxee, Washington;

2,150 feet north and 1,850 feet west of the southeast corner of sec. 2, T. 12 N., R. 22 E.; USGS Black Rock Spring topographic quadrangle; latitude 46°33'18" N., longitude 120°01'33" W.

- A—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate thin platy structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine irregular pores; neutral; clear smooth boundary.
- AB—4 to 10 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine and few fine irregular pores; 10 percent pebbles; slightly alkaline; abrupt smooth boundary.
- 2Btk—10 to 21 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine roots; common fine tubular pores; few faint clay films on faces of ped; 15 percent pebbles and 30 percent cobbles; few coatings of lime on underside of coarse fragments; strongly effervescent; moderately alkaline; clear wavy boundary.
- 2Bk—21 to 24 inches; light yellowish brown (10YR 6/4) very cobbly loam, dark yellowish brown (10YR 4/4) moist; massive; soft, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 20 percent pebbles and 30 percent cobbles; few faint coatings of lime on underside of coarse fragments; violently effervescent; moderately alkaline; abrupt smooth boundary.
- 3Bkqm—24 to 34 inches; indurated, lime- and silica-cemented duripan; gradual smooth boundary.
- 4Bkqm/C—34 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 20 to 40 inches. It is underlain by weakly cemented to indurated alluvium. The mollic epipedon is 7 to 15 inches thick.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is 5 to 10 percent pebbles. It is loam or silt loam.

The 2Btk and 2Bk horizons have value 5 or 6 dry and 2 to 4 moist, and they have chroma of 3 or 4 dry or moist. They are very cobbly loam, very gravelly loam, or very cobbly clay loam. The 2Btk horizon is slightly alkaline or moderately alkaline.

The 3Bkqm horizon is indurated and has a gravelly to extremely gravelly matrix. It is 8 to 36 inches thick and has 1- to 5-inch-thick silica plates.

The 4Bkqm/C horizon consists of weakly cemented to weakly indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Burbank Series

The Burbank series consists of very deep, excessively drained soils that formed in glacial outwash and alluvium. These soils are on terraces and terrace escarpments. Slopes are 0 to 60 percent. Elevation is 500 to 1,300 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Burbank very gravelly loamy sand in an area of Sagehill-Burbank-Malaga complex, 30 to 60 percent slopes, about 4½ miles south of Vantage, Washington; about 2,200 feet west and 1,800 feet south of the northeast corner of sec. 13, T. 16 N., R. 22 E.; USGS Ginko topographic quadrangle; latitude 46°52'44" N., longitude 120°00'39" W.

- A—0 to 5 inches; brown (10YR 5/3) very gravelly loamy sand, dark brown (10YR 3/3) moist; single grain; loose; common very fine and fine roots; 25 percent pebbles and 15 percent cobbles; slightly alkaline; gradual wavy boundary.
- Bw—5 to 17 inches; pale brown (10YR 6/3) very gravelly loamy sand, dark brown (10YR 3/3) moist; single grain; loose; few very fine and fine roots; 30 percent pebbles and 20 percent cobbles; slightly alkaline; gradual wavy boundary.
- Bk1—17 to 36 inches; light brownish gray (10YR 6/2) very gravelly sand, very dark grayish brown (10YR 3/2) moist; single grain; loose; few very fine and fine roots; about 35 percent pebbles and 15 percent cobbles; coatings of lime and silica on underside of some rock fragments; slightly effervescent; slightly alkaline; abrupt wavy boundary.
- Bk2—36 to 60 inches; dark gray (10YR 4/1) extremely gravelly coarse sand, very dark gray (10YR 3/1) moist; single grain; loose; about 45 percent pebbles and 25 percent cobbles; coatings of lime and silica on underside of some rock fragments; strongly effervescent; slightly alkaline.

The A horizon has value of 4 to 6 dry and 2 to 4 moist, and it has chroma of 1 to 3 dry or moist. It is very gravelly loamy sand or loamy fine sand.

The Bw horizon has value of 4 to 6 dry and 2 to 4

moist, and it has chroma of 1 to 3 dry or moist. It is very gravelly loamy sand, very gravelly loamy fine sand, loamy fine sand, gravelly loamy sand, or gravelly loamy fine sand. The horizon is 35 to 55 percent rock fragments.

The Bk horizon has value of 4 to 7 dry and 3 to 5 moist, and it has chroma of 1 to 3 dry or moist. It is very cobbly loamy sand, very gravelly sand, or extremely gravelly coarse sand. The horizon is slightly alkaline or moderately alkaline. It is 35 to 70 percent rock fragments.

### Caliralls Series

The Caliralls series consists of very deep, well drained soils that formed in loess and in colluvium derived from basalt. These soils are on hillslopes. Slopes are 10 to 45 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Caliralls silt loam, 15 to 30 percent slopes, about 9 miles south of Kittitas, Washington; 250 feet south and 900 feet west of northeast corner of sec. 29, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°51'06" N., longitude 120°20'31" W.

- A—0 to 3 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak very thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular and tubular pores; 5 percent pebbles; neutral; abrupt smooth boundary.
- AB—3 to 8 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to weak very thick platy; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent pebbles; neutral; clear wavy boundary.
- Bt1—8 to 13 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine roots; common fine tubular pores; few faint clay films in pores; 10 percent pebbles; neutral; clear wavy boundary.
- Bt2—13 to 23 inches; yellowish brown (10YR 5/4) gravelly silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, slightly sticky and slightly plastic; common very fine roots; common fine tubular pores; common

- distinct pressure faces on horizontal and vertical faces of peds; few faint clay films in pores; 20 percent pebbles; neutral; clear wavy boundary.
- Bt3—23 to 30 inches; yellowish brown (10YR 5/4) gravelly silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, slightly sticky and slightly plastic; common very fine roots; common fine tubular pores; few prominent clay films lining pores; 20 percent pebbles; slightly alkaline; clear wavy boundary.
- Btk1—30 to 36 inches; yellowish brown (10YR 5/4) gravelly silt loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine roots; common fine tubular pores; few faint light gray (10YR 7/2) coatings of lime in pores and on faces of peds; common distinct clay films lining pores; 20 percent pebbles; strongly effervescent; slightly alkaline; abrupt wavy boundary.
- Btk2—36 to 42 inches; yellowish brown (10YR 5/4) gravelly silt loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine tubular pores; few faint light gray (10YR 7/2) coatings of lime in pores; common distinct nonspecific pressure faces on horizontal and vertical faces of peds; common distinct clay films lining pores; 20 percent pebbles and 10 percent cobbles; strongly effervescent; moderately alkaline; clear wavy boundary.
- Btk3—42 to 60 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark brown (7.5YR 3/3) on surface of peds, brown (10YR 4/3) moist; moderate fine and medium angular blocky structure; hard, firm, sticky and plastic; few very fine roots; common fine tubular pores; few light gray (10YR 7/2) coatings of lime in pores; common distinct pressure faces on horizontal and vertical faces of peds; common distinct clay films lining pores; few fine rounded lime nodules; 25 percent pebbles and 5 percent cobbles; strongly effervescent; moderately alkaline.

The mollic epipedon is 10 to 17 inches thick. Depth to secondary lime is 25 to 43 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist.

The AB horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is 0 to 10 percent pebbles.

The Bt horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is

gravelly clay loam, gravelly silt loam, or silt loam. It is neutral or slightly alkaline.

The Btk horizon has value of 5 or 6 dry and 4 or 5 moist. The upper part is gravelly silt loam or gravelly clay loam, and the lower part is gravelly clay loam, very gravelly clay loam, or very gravelly silt loam. The horizon is moderately alkaline or strongly alkaline.

### Camaspatch Series

The Camaspatch series consists of shallow, well drained soils that formed in residuum and colluvium derived from basalt and in loess. These soils are on hillslopes, ridgetops, and benches. Slopes are 3 to 60 percent. Elevation is 2,900 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 49 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Camaspatch very cobbly loam in an area of Tanksel-Patron-Camaspatch complex, 15 to 30 percent slopes, about 9 miles southeast of Kittitas, Washington; 400 feet west and 2,200 feet south of the northeast corner of sec. 20, T. 16 N., R. 21 E.; USGS McDonald Spring topographic quadrangle; latitude 46°51'38" N., longitude 120°12'48" W.

- A—0 to 2 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine and fine pores; 20 percent pebbles and 30 percent cobbles; neutral; clear wavy boundary.
- Bt1—2 to 5 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure and moderate very fine granular; hard, firm, sticky and plastic; many very fine roots; many very fine and fine pores; few faint clay films lining pores; 30 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.
- Bt2—5 to 12 inches; brown (10YR 5/3) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common very fine roots; many very fine and fine pores; many distinct clay films lining pores and on faces of peds; 30 percent pebbles and 15 percent cobbles; neutral; clear wavy boundary.
- Bt3—12 to 19 inches; brown (10YR 5/3) extremely gravelly clay, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few fine roots; few very fine pores; many prominent clay

films on faces of peds and in pores; 45 percent pebbles and 25 percent cobbles; neutral; clear wavy boundary.

2R—19 inches; basalt.

The mollic epipedon is 7 to 15 inches thick, and it includes part of the argillic horizon. Depth to basalt is 12 to 20 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 1 to 3 dry or moist.

The Bt1 and Bt2 horizons have value of 4 or 5 dry and 2 or 3 moist, and they have chroma of 2 or 3 dry or moist. They are very cobbly clay loam or very gravelly clay loam.

The Bt3 horizon has value of 4 or 5 dry and 2 to 4 moist, and it has chroma of 2 or 3 dry or moist. It is very cobbly clay, extremely cobbly clay, or extremely gravelly clay.

### Clenage Series

The Clenage series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt and interbedded sediment with additions of loess. These soils are on ridgetops and hillslopes. Slopes are 15 to 30 percent. Elevation is 600 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Clenage very gravelly loam in an area of Disage-Clenage complex, 15 to 30 percent slopes, about 3½ miles southwest of Vantage, Washington; about 3,100 feet east and 850 feet north of the southwest corner of sec. 28, T. 17 N., R. 22 E.; USGS Ginkgo topographic quadrangle; latitude 46°55'48" N., longitude 120°04'42" W.

- A—0 to 3 inches; brown (10YR 4/3) very gravelly loam, dark brown (10YR 3/3) moist; weak thin platy structure parting to fine and medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine roots; few fine interstitial and irregular pores; 30 percent pebbles and 15 percent cobbles; slightly alkaline; clear wavy boundary.
- Bt1—3 to 8 inches; brown (10YR 4/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable, sticky and plastic; many very fine roots and common medium and coarse roots; many fine and medium interstitial and tubular pores; common distinct clay films lining pores and on faces of peds; 20 percent pebbles and

5 percent cobbles; slightly alkaline; clear wavy boundary.

Bt2—8 to 16 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; hard, friable, sticky and plastic; common very fine and few medium roots; many fine and medium interstitial and tubular pores; common distinct clay films lining pores and on faces of peds; 30 percent pebbles and 10 percent cobbles; slightly alkaline; abrupt wavy boundary.

2Btk1—16 to 20 inches; brown (10YR 5/3) very gravelly clay, brown (10YR 4/3) moist; strong medium prismatic structure parting to strong fine and medium angular blocky; very hard, firm, sticky and plastic; few very fine and medium roots; many fine to coarse irregular pores; many prominent clay films lining pores and on faces of peds; few distinct coatings of lime on vertical and horizontal faces of peds; 30 percent pebbles and 10 percent cobbles; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3Btk2—20 to 25 inches; brown (10YR 5/3) extremely gravelly clay, brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; few very fine roots; many fine and medium irregular pores; common distinct clay films lining pores and on faces of peds; common distinct coatings of lime on vertical and horizontal faces of peds; 35 percent pebbles, 20 percent cobbles, and 10 percent stones; strongly effervescent; moderately alkaline; abrupt irregular boundary.

4R—25 inches; fractured basalt with coatings of silica on 30 percent of total surface area.

Depth to basalt is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist.

The Bt horizon has value of 4 or 5 dry and chroma of 2 or 3 moist. It is gravelly clay loam or very gravelly clay loam. It is neutral or slightly alkaline.

The 2Btk and 3Btk horizons have hue of 10YR or 7.5YR and chroma of 2 to 4 dry or moist. They are very gravelly clay, extremely cobbly clay, or extremely gravelly clay. Structure is moderate or strong subangular blocky, angular blocky, or prismatic. The horizons are slightly alkaline or moderately alkaline.

## Clerf Series

The Clerf series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt and in loess. These soils are on

hillslopes and ridgetops. Slopes are 3 to 45 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Clerf very cobbly loam in an area of Vantage-Clerf complex, 15 to 30 percent slopes (fig. 5), about 12 miles southeast of Kittitas, Washington; 2,300 feet west and 2,500 feet south of the northeast corner of sec. 2, T. 15 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°49'01" N., longitude 120°17'05" W.

A—0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark brown (10YR 3/3) moist; moderate fine granular structure parting to moderate medium granular; soft, friable, slightly sticky and slightly plastic; many very fine discontinuous roots; common very fine interstitial pores; neutral; 25 percent pebbles and 20 percent cobbles; clear wavy boundary.

AB—3 to 6 inches; grayish brown (10YR 5/2) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; few very fine interstitial pores; neutral; 40 percent pebbles and 10 percent cobbles; abrupt wavy boundary.

2Bt1—6 to 12 inches; brown (10YR 5/3) very gravelly clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, firm, sticky and slightly plastic; common very fine and few fine roots; few very fine discontinuous pores; patchy distinct dark grayish brown (10YR 4/2) skeletal over cutans on vertical and horizontal faces of peds; slightly alkaline; 40 percent pebbles and 15 percent cobbles; clear wavy boundary.

2Bt2—12 to 24 inches; brown (7.5YR 5/4) extremely cobbly clay, dark brown (7.5YR 4/4) moist; strong fine angular blocky structure; very hard, firm, sticky and plastic; few very fine roots; few very fine tubular pores; many patchy faint brown (10YR 4/3) clay films on faces of peds; slightly alkaline; 50 percent pebbles and 30 percent cobbles; clear wavy boundary.

3R—24 inches; fractured basalt.

Depth to basalt is 20 to 40 inches. The mollic epipedon is 10 to 18 inches thick, and it includes part of the argillic horizon.

The A horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry and 2 or 3 moist, and chroma of 2 or 3 dry

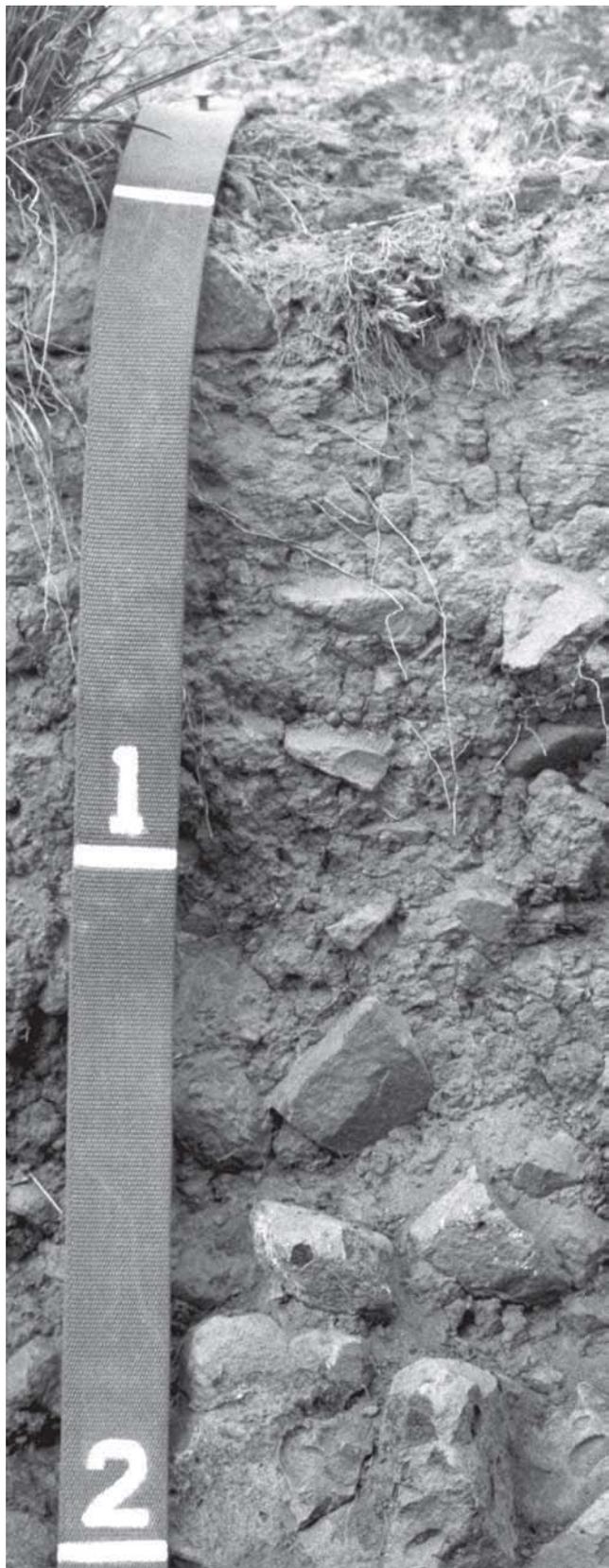


Figure 5.—Typical pedon of Clerf very cobbly loam in an area of Vantage-Clerf complex, 15 to 30 percent slopes.

or moist. The AB horizon is very cobbly clay loam, very gravelly clay loam, or very gravelly loam.

The 2Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 3 or 4 dry or moist. The upper part is very gravelly clay or very cobbly clay, and the lower part is very cobbly clay, extremely cobbly clay, or extremely gravelly clay. The horizon is neutral or slightly alkaline.

### Colockum Series

The Colockum series consists of very deep, well drained soils that formed in loess over material derived from basalt. These soils are on hillslopes. Slopes are 3 to 30 percent. Elevation is 2,900 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 48 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Colockum silt loam in an area of Colockum-Tronsen complex, 3 to 15 percent slopes, about 12 miles northeast of Moxee City, Washington; about 1,025 feet west and 850 feet north of the southeast corner of sec. 23, T. 14 N., R. 21 E.; USGS Black Rock Spring NW topographic quadrangle; latitude 46°40'51" N., longitude 120°09'10" W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate medium granular; soft, friable, nonsticky and nonplastic; many fine and few medium roots; neutral; clear smooth boundary.

Bt1—4 to 10 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate fine prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common faint clay films on faces of peds; neutral; clear wavy boundary.

Bt2—10 to 20 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common distinct dark brown (10YR 3/3) clay films on faces of peds; slightly alkaline; clear wavy boundary.

Bt3—20 to 33 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and nonplastic; common fine and very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; few fine iron and manganese concretions; 3 percent

pebbles and 5 percent cobbles; slightly alkaline; abrupt irregular boundary.

2Btk1—33 to 43 inches; yellowish brown (10YR 5/4) cobbly silty clay loam, dark yellowish brown (10YR 3/4) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; few very fine and fine roots; common distinct dark brown (10YR 3/3) clay films on faces of peds; 10 percent pebbles and 10 percent cobbles; common prominent light gray (10YR 7/2) coatings of lime on faces of peds; violently effervescent; moderately alkaline; abrupt irregular boundary.

2Btk2—43 to 52 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 3/4) moist; weak coarse prismatic structure; hard, firm, sticky and plastic; few very fine and fine roots; common distinct dark brown (10YR 3/3) clay films on faces of peds; 5 percent pebbles; slightly effervescent; moderately alkaline; abrupt irregular boundary.

2Btk3—52 to 60 inches; yellowish brown (10YR 5/4) silty clay loam, brown (7.5YR 4/4) moist; weak fine and medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; common distinct brown (10YR 4/4) clay films on faces of peds; common fine faint massive concretions; 5 percent pebbles and 5 percent cobbles; strongly effervescent; moderately alkaline.

Depth to secondary lime is 24 to 40 inches. The mollic epipedon is 10 to 20 inches thick, and it includes part of the argillic horizon.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist. It is neutral or slightly alkaline.

The AB horizon, where present, has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bt horizon has value of 4 to 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is silt loam, loam, or silty clay loam. It is neutral or slightly alkaline.

The 2Btk horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is cobbly silty clay loam, gravelly loam, or silty clay loam. It is slightly alkaline or moderately alkaline.

## Disage Series

The Disage series consists of shallow, well drained soils that formed in residuum and colluvium derived from basalt and in loess. These soils are on ridgetops and hillslopes. Slopes are 3 to 45 percent. Elevation is

500 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Disage very cobbly loam, 15 to 30 percent slopes, about 12 miles south of Vantage, Washington; about 350 feet west and 1,900 feet south of the northeast corner of sec. 28, T. 15 N., R. 22 E.; USGS Doris topographic quadrangle; latitude 46°45'41" N., longitude 120°03'55" W.

A—0 to 4 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; loose, friable, nonsticky and slightly plastic; many very fine roots; 25 percent pebbles and 15 percent cobbles; neutral; abrupt smooth boundary.

BAt—4 to 9 inches; brown (7.5YR 5/4) very gravelly clay loam, dark brown (7.5YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; few faint dark brown (7.5YR 3/2) clay films on faces of peds; 35 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

Bt1—9 to 14 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and few medium roots; few faint dark yellowish brown (10YR 3/4) clay films on faces of peds; 30 percent pebbles and 20 percent cobbles; neutral; clear wavy boundary.

Bt2—14 to 18 inches; yellowish brown (10YR 5/6) extremely cobbly clay loam, dark yellowish brown (10YR 3/6) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; few medium roots; few distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 35 percent pebbles and 40 percent cobbles; neutral; abrupt irregular boundary.

2R—18 inches; basalt.

Depth to basalt is 14 to 20 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist. It is very cobbly loam or very stony loam.

The BAt horizon is very gravelly clay loam or very cobbly clay loam.

The Bt horizon has hue of 10YR or 7.5YR, and it has chroma of 3 to 5 dry or moist. It is very gravelly clay loam, extremely cobbly clay loam, or very cobbly clay. It has moderate or strong subangular blocky or prismatic structure.

## Drino Series

The Drino series consists of moderately deep, well drained soils that formed in colluvium derived from basalt and in loess. These soils are on hillslopes. Slopes are 15 to 75 percent. Elevation is 500 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Drino very stony loam in an area of Fortyday-Drino-Sohappy complex, 30 to 45 percent slopes, about 14 miles south of Vantage, Washington; 1,600 feet west and 800 feet north of southeast corner of sec. 7, T. 14 N., R. 23 E.; USGS Priest Rapids topographic quadrangle; latitude 46°42'36" N., longitude 119°58'06" W.

- A—0 to 3 inches; yellowish brown (10YR 5/4) very stony loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; few very fine tubular pores and common very fine irregular pores; 30 percent pebbles, 15 percent cobbles, and 10 percent stones; neutral; clear smooth boundary.
- BA—3 to 7 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak and moderate fine prismatic structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few very fine tubular pores and common very fine irregular pores; 35 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.
- Bt1—7 to 14 inches; yellowish brown (10YR 5/4) very gravelly loam, dark brown (10YR 3/3) moist; weak and moderate medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular and irregular pores and few medium vesicular pores; few distinct clay films on faces of peds; 35 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.
- Bt2—14 to 19 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak and moderate medium prismatic structure; slightly hard, friable, nonsticky and nonplastic; few very fine and medium roots; few very fine tubular pores and common fine and medium irregular pores; few distinct clay films on faces of peds; 35 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.
- Bk1—19 to 25 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR

3/4) moist; weak and moderate fine and medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores and common fine and medium irregular and vesicular pores; few patchy coatings of lime on faces of peds; 40 percent pebbles and 15 percent cobbles; slightly effervescent; slightly alkaline; clear wavy boundary.

- Bk2—25 to 32 inches; brown (10YR 5/3) extremely cobbly loam, dark yellowish brown (10YR 3/4) moist; weak medium prismatic structure; soft, very friable, nonsticky and slightly plastic; few very fine roots; few very fine tubular pores and common fine and medium vesicular pores; few patchy coatings of lime in root channels and pores; 25 percent pebbles and 50 percent cobbles; slightly effervescent; slightly alkaline; clear wavy boundary.
- Bk3—32 to 38 inches; pale brown (10YR 6/3) extremely cobbly loam, dark yellowish brown (10YR 3/4) moist; weak medium prismatic structure; loose, nonsticky and slightly plastic; few very fine roots; common coatings of lime throughout horizon; 30 percent pebbles and 45 percent cobbles; strongly effervescent; moderately alkaline; abrupt irregular boundary.
- 2R—38 inches; fractured basalt.

Depth to basalt is 20 to 40 inches.

The A horizon has value of 3 or 4 moist. It is very stony loam, very cobbly loam, or cobbly loam.

The BA horizon is very gravelly loam or very cobbly loam.

The Bt horizon has chroma of 3 or 4 dry or moist. It is very cobbly loam or very gravelly loam. It is neutral or slightly alkaline.

The Bk horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is extremely cobbly loam, very gravelly loam, or extremely gravelly loam. It is slightly alkaline or moderately alkaline.

## Drysel Series

The Drysel series consists of soils that are moderately deep to a duripan and are well drained. These soils formed in loess and alluvium. They are on alluvial fans. Slopes are 2 to 10 percent. Elevation is 1,000 to 1,800 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Drysel loam, 2 to 5 percent slopes,

about 2 miles east of Selah, Washington; 1,350 feet east and 1,100 feet south of the northwest corner of sec. 22, T. 14 N., R. 19 E.; USGS Pomona topographic quadrangle; latitude 46°41'26" N., longitude 120°26'21" W.

- A—0 to 3 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to moderate fine granular; loose, very friable, nonsticky and nonplastic; many very fine and few coarse roots; many very fine irregular pores; neutral; clear smooth boundary.
- AB—3 to 11 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few coarse roots; very fine irregular pores; 5 percent pebbles; slightly alkaline; clear wavy boundary.
- Bt1—11 to 18 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; very friable, slightly sticky and slightly plastic; common fine and very fine roots; common very fine irregular pores; very few faint clay films on faces of peds and lining pores; 5 percent pebbles; slightly alkaline; clear wavy boundary.
- Bt2—18 to 27 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; very few faint clay films on faces of peds and lining pores; 5 percent pebbles; slightly alkaline; abrupt wavy boundary.
- Btk—27 to 31 inches; dark brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; very few faint clay films lining pores; few fine rounded soft masses of lime; 10 percent pebbles; strongly effervescent; moderately alkaline; abrupt smooth boundary.
- 2Bkqm—31 to 41 inches; indurated, lime- and silica-cemented duripan; gradual smooth boundary.
- 3Bkqm/C—41 to 60 inches; stratified indurated material with lenses of gravelly sandy loam.

Depth to the duripan is 20 to 40 inches. It is underlain by stratified weakly cemented to indurated alluvial material. Depth to secondary lime is 15 to 30 inches.

The A and AB horizons have value of 5 or 6 dry and

3 or 4 moist, and they have chroma of 2 or 3 dry or moist. They are neutral or slightly alkaline.

The Bt and Btk horizons have value of 5 to 7 dry and 4 or 5 moist, and they have chroma of 2 to 4 dry or moist. The Bt horizon is silt loam, loam, or silty clay loam. The Btk horizon is clay loam, gravelly clay loam, or loam. The horizons are slightly alkaline or moderately alkaline.

The 2Bkqm horizon is indurated and has a gravelly to extremely gravelly matrix. It is 8 to 36 inches thick and has 1- to 5-inch-thick silica plates.

The 3Bkqm/C horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Durixerolls

Durixerolls consists of soils that are shallow and moderately deep to a duripan and are well drained. These soils formed in loess and alluvium. They are on alluvial fan escarpments. Slopes are 30 to 60 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Representative pedon of Durixerolls very gravelly loam in an area of Argixerolls-Durixerolls complex, steep north, about 400 feet north and 100 feet west of the southeast corner of sec. 20, T. 14 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°40'06" N., longitude 120°05'07" W.

- A—0 to 9 inches; brown (10YR 4/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 30 percent pebbles and 15 percent cobbles; neutral; clear wavy boundary.
- Bt1—9 to 12 inches; brown (10YR 4/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; few faint clay films lining pores; 30 percent pebbles and 15 percent cobbles; slightly alkaline; clear wavy boundary.
- Bt2—12 to 21 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; common fine tubular pores; few distinct clay films lining pores and on faces of

pedes; 50 percent pebbles and 15 percent cobbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.

2Bkqm—21 to 31 inches; strongly cemented to moderately indurated alluvial material.

3Bkqm/C—31 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 10 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is cobbly clay loam or very gravelly loam.

The Bt horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is gravelly clay loam, very gravelly loam, very gravelly clay loam, or extremely gravelly loam. It is slightly alkaline or moderately alkaline.

The 2Bkqm horizon is strongly cemented to indurated and has a gravelly to extremely gravelly matrix. It is 8 to 36 inches thick and has 1- to 5-inch-thick silica plates.

The 3Bkqm/C horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Durtash Series

The Durtash series consists of soils that are shallow to a duripan and are well drained. These soils formed in loess and alluvium. They are on alluvial fans. Slopes are 2 to 30 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Durtash loam, 5 to 10 percent slopes, about 9 miles south of Kittitas, Washington; 900 feet south and 2,400 feet east of the northwest corner of sec. 31, T. 14 N., R. 21 E.; USGS Black Rock Spring NW topographic quadrangle; latitude 46°39'41" N., longitude 120°14'42" W.

A1—0 to 4 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and few medium roots; many very fine irregular pores; 5 percent pebbles; neutral; clear wavy boundary.

A2—4 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common fine and few medium roots; common very fine irregular pores; 5 percent pebbles; neutral; abrupt wavy boundary.

Bt1—7 to 10 inches; brown (10YR 5/3) very gravelly clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; very hard, firm, sticky and plastic; common fine and few medium roots; common very fine irregular and tubular pores; common distinct dark yellowish brown (10YR 4/4) clay films lining pores; 30 percent pebbles and 10 percent cobbles; slightly alkaline; clear wavy boundary.

Bt2—10 to 14 inches; yellowish brown (10YR 5/4) very gravelly clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; very hard, firm, sticky and slightly plastic; common fine roots; common very fine irregular and tubular pores; common distinct dark yellowish brown (10YR 4/4) clay films lining pores; 45 percent pebbles and 10 percent cobbles; slightly alkaline; abrupt irregular boundary.

Bt3—14 to 19 inches; yellowish brown (10YR 5/4) extremely gravelly clay, brown (10YR 4/3) moist; strong medium subangular blocky structure; very hard, firm, sticky and plastic; few fine roots; common very fine tubular pores; many distinct dark yellowish brown (10YR 4/4) clay films on faces of pedes; 50 percent pebbles and 20 percent cobbles; slightly alkaline; abrupt irregular boundary.

2Bkqm—19 to 29 inches; indurated, lime- and silica-cemented duripan.

3Bkqm/C—29 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 10 to 20 inches. It is underlain by stratified weakly cemented to indurated alluvial material.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist. It is cobbly loam, loam, or stony loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry, and chroma of 3 to 5 dry or moist. The upper part is extremely gravelly clay, very cobbly clay loam, very gravelly clay loam, or gravelly clay loam and is neutral or slightly alkaline. The lower part is extremely gravelly clay, very gravelly clay, very gravelly clay loam, or very cobbly clay loam and is slightly alkaline or moderately alkaline.

The 2Bkqm horizon is indurated and has a gravelly to extremely gravelly matrix. It is 8 to 36 inches thick and has 1- to 5-inch-thick silica plates.

The 3Bkqm/C horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Esquatzel Series

The Esquatzel series consists of very deep, well drained soils that formed in alluvium (fig. 6). These soils are on terraces and bottom land. Slopes are 0 to 5 percent. Elevation is 500 to 2,900 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 48 to 53 degrees F, and the frost-free season is 130 to 180 days.

Typical pedon of Esquatzel silt loam in an area of Esquatzel-Weirman complex, channeled, 0 to 2 percent slopes, about 10 miles southeast of Kittitas, Washington; 2,000 feet west and 2,400 feet south of the northeast corner of sec. 36, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°49'54" N., longitude 120°15'42" W.

- A1—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure parting to weak thick platy; slightly hard, friable, nonsticky and nonplastic; many very fine roots; common fine tubular pores and common very fine vesicular pores; neutral; clear wavy boundary.
- A2—4 to 10 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many fine and common medium roots; common very fine tubular pores and few very fine vesicular pores; neutral; clear wavy boundary.
- Bw—10 to 22 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse prismatic structure; slightly hard, friable, nonsticky and nonplastic; many fine and common medium roots; few very fine tubular pores that are oriented vertically within prisms and few very fine vesicular pores; neutral; clear wavy boundary.
- Bk1—22 to 31 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores that are oriented vertically within prisms and few very fine vesicular pores within prisms; slightly alkaline; clear wavy boundary.
- Bk2—31 to 40 inches; light yellowish brown (10YR 6/4) silt loam, yellowish brown (10YR 5/4) moist; weak medium and coarse prismatic structure; soft, friable, slightly sticky and slightly plastic; few very fine roots; few aggregates of secondary lime; common very fine vesicular pores; slightly alkaline; abrupt smooth boundary.
- Bk3—40 to 60 inches; pale brown (10YR 6/3) silt

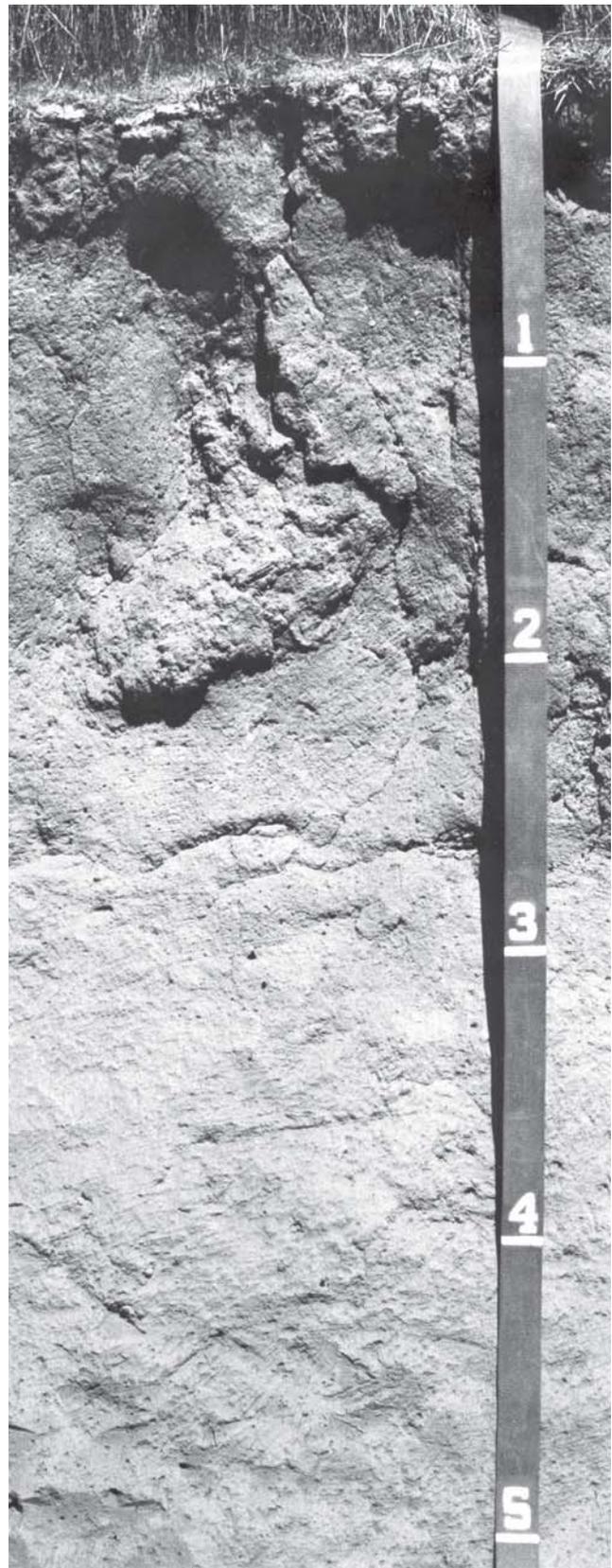


Figure 6.—Typical pedon of Esquatzel silt loam, 0 to 2 percent slopes.

loam, yellowish brown (10YR 5/4) moist; weak coarse prismatic structure; soft, friable, slightly sticky and slightly plastic; few very fine roots; few aggregates of secondary lime; common very fine vesicular pores; slightly effervescent; moderately alkaline; abrupt smooth boundary.

The mollic epipedon is 10 to 20 inches thick. Depth to secondary lime is 20 to 40 inches. Occasional, brief periods of flooding occur in January through May in some areas.

The A horizon has chroma of 2 or 3 dry or moist.

The Bk horizon has value of 5 or 6 dry and 3 to 5 moist, and it has chroma of 2 to 4 dry or moist. Below a depth of 40 inches, the horizon is silt loam or stratified silt loam to fine sandy loam. Few pebbles are in some pedons. The horizon is slightly alkaline or moderately alkaline.

The Esquatzel soils in this survey area are a taxadjunct to the Esquatzel series because they have a cambic horizon. This difference, however, does not affect use and management.

## Finley Series

The Finley series consists of very deep, well drained soils that formed in gravelly alluvium. These soils are on alluvial fans. Slopes are 3 to 15 percent. Elevation is 600 to 1,300 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Finley sandy loam in an area of Finley complex, 3 to 15 percent slopes, about 6 miles south of Vantage, Washington; about 1,500 feet west and 300 feet north of the southeast corner of sec. 19, T. 16 N., R. 23 E.; USGS Nile topographic quadrangle; latitude 46°50'58" N., longitude 120°59'09" W.

A—0 to 4 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to weak medium granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots; common fine interstitial pores; 10 percent pebbles; neutral; clear wavy boundary.

Bw1—4 to 8 inches; brown (10YR 4/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium and thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; common fine, medium, and coarse roots; common very fine and fine interstitial and tubular pores; 20 percent pebbles; neutral; clear wavy boundary.

Bw2—8 to 13 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; moderate fine and

medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots and few coarse roots; common fine and medium interstitial pores; 12 percent pebbles; slightly alkaline; abrupt wavy boundary.

Bw3—13 to 22 inches; brown (10YR 4/3) extremely gravelly sandy loam, dark brown (10YR 3/3) moist; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots and few coarse roots; common fine and medium interstitial pores; 30 percent pebbles and 35 percent cobbles; slightly alkaline; abrupt wavy boundary.

Bk—22 to 38 inches; brown (10YR 4/3) extremely gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; 40 percent pebbles, 30 percent cobbles, and 5 percent stones; slightly effervescent; coatings of silica and lime on underside of some rock fragments; slightly alkaline; abrupt smooth boundary.

2C—38 to 60 inches; brown (10YR 5/3) extremely gravelly loamy sand, very dark brown (10YR 2/2) moist; single grain; loose, nonsticky and nonplastic; 40 percent pebbles, 30 percent cobbles, and 10 percent stones; slightly alkaline.

Depth to the 2C horizon is 20 to 40 inches.

The A horizon has value of 5 to 7 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is sandy loam or cobbly sandy loam.

The Bw horizon has value of 4 to 7 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. The Bw1 and Bw2 horizons are gravelly loam, loam, or gravelly sandy loam. The Bw3 horizon is extremely gravelly sandy loam, very gravelly loam, or very cobbly sandy loam. The Bw horizon is neutral to moderately alkaline.

The Bk horizon has value of 4 to 7 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is extremely gravelly sandy loam, very gravelly loam, or very cobbly sandy loam. It is slightly alkaline or moderately alkaline.

The 2C horizon is extremely gravelly sand, extremely gravelly loamy sand, or extremely cobbly sand.

## Fortyday Series

The Fortyday series consists of shallow, well drained soils that formed in residuum and colluvium derived from basalt with small additions of loess. These soils are on benches and hillslopes. Slopes are 3 to 70 percent. Elevation is 500 to 2,000 feet. The

average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Fortyday very stony loam in an area of Fortyday-Drino-Sohappy complex, 30 to 45 percent slopes, about 14 miles south of Vantage, Washington; 1,550 feet west and 850 feet north of the southeast corner of sec. 7, T. 14 N., R. 23 E.; USGS Priest Rapids topographic quadrangle; latitude 46°42'36" N., longitude 119°59'06" W.

A—0 to 3 inches; yellowish brown (10YR 5/4) very stony loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, friable, nonsticky and nonplastic; many very fine roots; common very fine pores; 30 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

BA—3 to 6 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few medium roots; common very fine pores; common fine iron and manganese concretions; 35 percent pebbles and 5 percent cobbles; slightly alkaline; clear wavy boundary.

Bt1—6 to 10 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine pores; common distinct clay films on faces of peds; common fine iron and manganese concretions; 45 percent pebbles and 15 percent cobbles; slightly alkaline; clear wavy boundary.

Bt2—10 to 15 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine pores; common distinct clay films on faces of peds; few fine iron and manganese concretions; 30 percent pebbles and 35 percent cobbles; slightly alkaline; abrupt irregular boundary.

2R—15 inches; basalt.

Depth to basalt is 14 to 20 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is cobbly loam, very stony loam, or stony sandy loam.

The BA horizon has chroma of 3 or 4 moist. It is very gravelly loam or very cobbly loam. It is neutral or slightly alkaline.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is very gravelly loam, extremely gravelly clay loam, or extremely cobbly loam. It has weak or moderate, fine or medium subangular blocky structure. It is neutral or slightly alkaline.

## Frint Series

The Frint series consists of moderately deep, well drained soils that formed in colluvium derived from basalt and in loess mixed with volcanic ash in the upper part. These soils are on hillslopes. Slopes are 45 to 70 percent. Elevation is 3,100 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 42 to 44 degrees F, and the frost-free season is 90 to 110 days.

Typical pedon of Frint gravelly silt loam in an area of Frint-Hogranh complex, 45 to 70 percent slopes, about 13 miles northeast of Moxee City, Washington; 2,640 feet west and 2,000 feet south of the northeast corner of sec. 30, T. 14 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°40'24" N., longitude 120°06'58" W.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) gravelly silt loam, black (10YR 2/1) moist; weak fine granular structure; loose, very friable, nonsticky and nonplastic; many very fine roots; common very fine irregular pores; 15 percent pebbles and 5 percent cobbles; neutral; abrupt smooth boundary.

A2—3 to 8 inches; dark grayish brown (10YR 4/2) gravelly silt loam, black (10YR 2/1) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine irregular pores; 25 percent pebbles; neutral; clear smooth boundary.

AB—8 to 12 inches; brown (10YR 4/3) gravelly silt loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 35 percent pebbles; neutral; abrupt wavy boundary.

2Bw1—12 to 17 inches; dark yellowish brown (10YR 4/4) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 40 percent pebbles; neutral; clear wavy boundary.

2Bw2—17 to 20 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 50 percent pebbles and 5 percent cobbles; neutral; clear wavy boundary.

2Bw3—20 to 24 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 35 percent pebbles and 40 percent cobbles; neutral; clear wavy boundary.

2Bw4—24 to 28 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine irregular pores; 35 percent pebbles and 40 percent cobbles; neutral; abrupt irregular boundary.

3R—28 inches; basalt.

Depth to basalt is 20 to 40 inches. The mollic epipedon is 20 to 24 inches thick.

The A horizon has chroma of 1 or 2 moist.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist.

The 2Bw horizon has value of 4 or 5 dry and chroma of 3 or 4 dry or moist. The upper part is very gravelly loam or very gravelly silt loam, and the lower part is extremely gravelly loam, extremely cobbly silt loam, very cobbly silt loam, or extremely cobbly loam. The horizon is neutral or slightly alkaline.

## Gidwin Series

The Gidwin series consists of shallow, well drained soils that formed in colluvium derived from basalt and in loess. These soils are on hillslopes. Slopes are 45 to 70 percent. Elevation is 3,100 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 42 to 44 degrees F, and the frost-free season is 90 to 110 days.

Typical pedon of Gidwin cobbly silt loam in an area of Frint-Hogranth-Gidwin complex, 45 to 70 percent slopes, about 12 miles northeast of Moxee City, Washington; 1,900 feet west and 1,100 feet north of the southeast corner of sec. 30, T. 14 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°40'05" N., longitude 120°06'48" W.

A—0 to 3 inches; dark grayish brown (10YR 4/2) cobbly silt loam, very dark brown (10YR 2/2) moist; weak fine and medium granular structure;

soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine pores; 15 percent pebbles and 15 percent cobbles; neutral; clear wavy boundary.

AB—3 to 7 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots and few fine and medium roots; common very fine pores; 35 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

Bt1—7 to 12 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine roots and few fine and medium roots; few very fine tubular pores; common distinct clay films on faces of peds; 60 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

Bt2—12 to 17 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; few faint clay films lining pores and on faces of peds; 65 percent pebbles and 10 percent cobbles; neutral; abrupt irregular boundary.

2R—17 inches; basalt.

Depth to basalt is 14 to 20 inches. The mollic epipedon is 14 to 20 inches thick, and it includes all or part of the argillic horizon. The profile is neutral or slightly alkaline.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is very gravelly loam or very cobbly loam.

The Bt horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is very gravelly clay loam, extremely gravelly loam, or very cobbly loam.

## Gorskel Series

The Gorskel series consists of soils that are shallow to a duripan and are well drained. These soils formed in loess and alluvium. They are on old alluvial fans. Slopes are 3 to 15 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 51 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Gorskel silt loam in an area of Brehm-Gorskel-Gorst complex, 10 to 15 percent

slopes, about 8 miles northeast of Selah, Washington; about 100 feet south and 1,200 feet west of the northeast corner of sec. 8., T. 14 N., R. 20 E.; USGS Selah Springs topographic quadrangle; latitude 46°43'20" N., longitude 120°20'35" W.

- A1—0 to 3 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular pores; 5 percent pebbles; slightly alkaline; clear smooth boundary.
- A2—3 to 5 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate medium platy; slightly hard, friable, nonsticky and nonplastic; common very fine and few coarse roots; many very fine irregular pores; 5 percent pebbles; slightly alkaline; clear wavy boundary.
- Bt—5 to 10 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few coarse roots; common very fine irregular pores; very few faint clay films lining pores; soft masses of lime; 20 percent pebbles and 5 percent cobbles; slightly alkaline; clear wavy boundary.
- Btk—10 to 16 inches; yellowish brown (10YR 5/4) very cobbly clay loam, brown (10YR 4/3) moist; weak fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; very few faint clay films lining pores; soft masses of lime; 20 percent pebbles and 25 percent cobbles; strongly effervescent; moderately alkaline; gradual wavy boundary.
- 2Bkqm—16 to 26 inches; indurated, lime- and silica-cemented duripan.
- 3Bkqm/C—26 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 10 to 20 inches. It is underlain by stratified weakly cemented to indurated alluvial material. The mollic epipedon is 11 to 16 inches thick, and it may include part of the argillic horizon.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is silt loam or cobbly loam.

The Bt and Btk horizons have value of 4 or 5 dry and 3 or 4 moist, and they have chroma of 3 or 4 dry or moist. The Bt is gravelly silt loam, cobbly loam, or

very gravelly loam. The Btk horizon is very gravelly loam, very gravelly clay loam, or very cobbly clay loam. The horizons are slightly alkaline or moderately alkaline.

The 2Bkqm horizon is indurated, and it has a gravelly to extremely gravelly matrix. It is 8 to 36 inches thick and has 1- to 5-inch-thick silica plates.

The 3Bkqm horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Gorst Series

The Gorst series consists of soils that are shallow to a duripan and are well drained. These soils formed in loess. They are on alluvial fans. Slopes are 2 to 30 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 51 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Gorst loam, 2 to 5 percent slopes, about 11 miles southeast of Kittitas, Washington; 350 feet west and 350 feet south of the northeast corner of sec. 5, T. 15 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°49'24" N., longitude 120°20'24" W.

- A—0 to 3 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate thin and very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular and vesicular pores; neutral; abrupt smooth boundary.
- AB—3 to 6 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few medium and coarse roots; common very fine tubular and vesicular pores; neutral; abrupt wavy boundary.
- Bw1—6 to 9 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; common very fine tubular and vesicular pores; slightly alkaline; clear wavy boundary.
- Bw2—9 to 14 inches; yellowish brown (10YR 5/4) gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots and few medium roots; common very fine tubular and vesicular pores;

15 percent pebbles; slightly alkaline; abrupt smooth boundary.

2Bkqm—14 to 24 inches; indurated, lime- and silica-cemented duripan; gradual smooth boundary.

3Bkqm/C—24 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 12 to 20 inches. It is underlain by stratified weakly cemented to indurated alluvial material.

The A and AB horizons have value of 4 or 5 dry and 2 or 3 moist, and they have chroma of 2 or 3 dry or moist. They have very thin, thin, or thick platy structure parting to moderate medium or fine subangular blocky structure.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is gravelly loam, silt loam, or loam.

The 2Bkqm horizon is indurated, and it has a gravelly to extremely gravelly matrix. It is 8 to 36 inches thick and has 1- to 5-inch-thick silica plates.

The 3Bkqm/C horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Grinrod Series

The Grinrod series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from basalt and in loess. These soils are on hillslopes, ridgetops, and benches. Slopes are 3 to 60 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Grinrod very cobbly loam in an area of Grinrod-Horseflat complex, 45 to 60 percent slopes, about 15 miles northeast of Moxee City, Washington; about 2,350 feet east and 400 feet south of the northwest corner of sec. 14, T. 13 N., R. 22 E.; USGS Black Rock Spring topographic quadrangle; latitude 46°37'11" N., longitude 120°00'04" W.

A1—0 to 4 inches; brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, friable, slightly sticky and slightly plastic; common fine and very fine roots; few very fine pores; 20 percent pebbles and 25 percent cobbles; neutral; clear smooth boundary.

A2—4 to 11 inches; brown (10YR 4/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky

structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine pores; 35 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.

Bt1—11 to 18 inches; yellowish brown (10YR 5/4) very gravelly loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; few very fine pores; common distinct clay films lining pores and on faces of peds; 40 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.

Bt2—18 to 25 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; few very fine pores; many distinct clay films lining pores and on faces of peds; 30 percent pebbles and 10 percent cobbles; neutral; abrupt irregular boundary.

R—25 inches; basalt.

Depth to basalt is 20 to 40 inches. The mollic epipedon is 10 to 16 inches, and it includes all or part of the argillic horizon. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry, and it has chroma of 2 or 3 dry or moist.

The Bt horizon has value of 4 to 6 dry and chroma of 3 or 4 dry or moist. The upper part is very cobbly loam or very gravelly loam, and the lower part is very gravelly loam, extremely gravelly loam, or extremely cobbly clay loam.

## Haploxerolls

Haploxerolls consists of very deep, well drained soils that formed in alluvium. These soils are on stream terraces and flood plains. Slopes are 0 to 5 percent. Elevation is 500 to 2,500 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 130 to 195 days.

Representative pedon of Haploxerolls silt loam in an area of Haploxerolls-Orthents-Aquolls complex, channeled, 0 to 5 percent slopes, about 2,200 feet north and 2,700 feet east of the southwest corner of sec. 23, T. 15 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°46'19" N., longitude 120°17'09" W.

A—0 to 6 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; moderate medium

platy structure parting to moderate fine granular; soft, friable, nonsticky and nonplastic; many very fine and fine roots and few coarse roots; strongly effervescent; strongly alkaline; clear smooth boundary.

AC—6 to 14 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots and few coarse roots; strongly effervescent; strongly alkaline; clear smooth boundary.

2C—14 to 60 inches; stratified brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist, to pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak medium and coarse prismatic structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; slightly effervescent; moderately alkaline.

Depth to the 2C horizon is 14 to 40 inches. The profile is 0 to 15 percent rock fragments. It is calcareous throughout.

The A and AC horizons have chroma of 2 to 4 dry or moist. They are moderately alkaline or strongly alkaline.

The 2C horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is stratified fine sandy loam to silt loam. It is slightly alkaline to strongly alkaline.

## Hogranch Series

The Hogranch series consists of deep, well drained soils that formed in loess mixed with volcanic ash in the upper part and in colluvium. These soils are on hillslopes. Slopes are 45 to 70 percent. Elevation is 3,100 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 42 to 44 degrees F, and the frost-free season is 90 to 110 days.

Typical pedon of Hogranch silt loam in an area of Frint-Hogranch complex, 45 to 70 percent slopes, about 11 miles northeast of Moxee City, Washington; about 1,705 feet north and 80 feet west of the southeast corner of sec. 30, T. 14 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°40'17" N., longitude 120°06'26" W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; common very fine tubular pores; 5 percent pebbles; neutral; clear smooth boundary.

A2—4 to 8 inches; dark grayish brown (10YR 4/2) silt

loam, black (10YR 2/1) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; common very fine tubular pores; 5 percent pebbles; neutral; clear wavy boundary.

A3—8 to 15 inches; dark brown (10YR 3/3) gravelly silt loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine tubular pores; 25 percent pebbles; neutral; clear wavy boundary.

AB—15 to 21 inches; brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores; 30 percent pebbles; neutral; abrupt wavy boundary.

2Bw1—21 to 34 inches; brown (10YR 4/3) extremely gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores; 45 percent pebbles and 20 percent cobbles; neutral; clear wavy boundary.

2Bw2—34 to 38 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine irregular pores; 35 percent pebbles and 40 percent cobbles; neutral; clear wavy boundary.

2Bw3—38 to 46 inches; yellowish brown (10YR 5/4) extremely cobbly loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; 35 percent pebbles and 40 percent cobbles; neutral; abrupt irregular boundary.

3R—46 inches; fractured basalt; 35 percent of total surface area covered with coatings of silica and 20 percent covered with coatings of lime.

Depth to basalt is 40 to 60 inches. The mollic epipedon is 20 to 29 inches thick.

The A horizon has chroma of 2 or 3 dry and 1 or 2 moist.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist. It is gravelly silt loam, gravelly loam, or very gravelly loam.

The 2Bw horizon has value of 4 or 5 dry and

chroma of 3 or 4 dry or moist. It is very cobbly loam, extremely cobbly loam, or extremely gravelly loam.

### Horseflat Series

The Horseflat series consists of shallow, well drained soils that formed in colluvium and residuum derived from basalt and in loess. These soils are on hillslopes, ridgetops, and benches. Slopes are 3 to 60 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Horseflat very cobbly loam in an area of Norod-Horseflat complex, 30 to 45 percent slopes, about 7 miles south of Vantage, Washington; about 1,200 feet south and 2,400 feet west of the northeast corner of sec. 31, T. 16 N., R. 23 E.; USGS Beverly topographic quadrangle; latitude 46°50'14" N., longitude 120°59'23" W.

- A—0 to 4 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate fine and medium granular structure; soft, friable, nonsticky and nonplastic; many very fine roots; few very fine irregular pores; 20 percent pebbles and 25 percent cobbles; slightly alkaline; clear smooth boundary.
- AB—4 to 9 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few coarse roots; few very fine irregular pores; 30 percent pebbles and 10 percent cobbles; slightly alkaline; clear wavy boundary.
- Bt—9 to 16 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; common distinct clay films on faces of peds; 55 percent pebbles and 15 percent cobbles; slightly alkaline; abrupt irregular boundary.
- R—16 inches; basalt; coatings of silica on 30 percent of the surface area.

Depth to basalt is 12 to 20 inches. The mollic epipedon is 10 to 17 inches, and it includes all or part of the argillic horizon. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is very gravelly clay loam, very gravelly loam, or very

cobbly loam. It has moderate medium and fine granular or subangular blocky structure.

The Bt horizon has value of 4 or 5 and chroma of 2 or 3 dry or moist. It is extremely gravelly loam, extremely cobbly loam, or very cobbly clay loam. It has weak or moderate, fine and medium subangular blocky structure.

### Kiona series

The Kiona series consists of very deep, well drained soils that formed in colluvium derived from basalt and in loess. These soils are on hillslopes. Slopes are 30 to 120 percent. Elevation is 500 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Kiona very stony loam, 45 to 60 percent slopes, about 10 miles southeast of Kittitas, Washington; about 1,800 feet west and 900 feet north of the southeast corner of sec. 33, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°49'37" N., longitude 120°19'28" W.

- A—0 to 4 inches; brown (10YR 5/3) very stony loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine tubular pores; 25 percent pebbles, 20 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.
- Bw1—4 to 10 inches; yellowish brown (10YR 5/4) very gravelly loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few medium roots; many very fine tubular pores; 30 percent pebbles and 15 percent cobbles; slightly alkaline; clear wavy boundary.
- Bw2—10 to 21 inches; yellowish brown (10YR 5/4) very gravelly loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; common very fine and few fine roots; many very fine tubular pores; 35 percent pebbles and 10 percent cobbles; slightly alkaline; clear wavy boundary.
- Bk1—21 to 28 inches; pale brown (10YR 6/3) extremely gravelly loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine, medium, and coarse roots; common very fine tubular pores; common patchy coatings of lime on faces of peds and lining pores; 55 percent pebbles and 20 percent cobbles;

strongly effervescent; moderately alkaline; clear wavy boundary.

- Bk2—28 to 41 inches; pale brown (10YR 6/3) extremely gravelly loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine, medium, and coarse roots; common very fine tubular pores; common patchy coatings of lime on faces of peds and lining pores; 50 percent pebbles and 20 percent cobbles; strongly effervescent; moderately alkaline; clear wavy boundary.
- Bk3—41 to 48 inches; pale brown (10YR 6/3) extremely gravelly loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and medium roots; common very fine tubular pores; common patchy coatings of lime on faces of peds and lining pores; 50 percent pebbles and 25 percent cobbles; strongly effervescent; moderately alkaline; clear wavy boundary.
- Bk4—48 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common distinct coatings of lime on faces of peds and lining pores; 50 percent pebbles and 25 percent cobbles; strongly effervescent; moderately alkaline.

Depth to secondary lime is 20 to 36 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is very cobbly loam or very stony loam.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is very cobbly loam, cobbly silt loam, or very gravelly loam.

The Bk horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 3 or 4 dry or moist. It is extremely gravelly loam, extremely cobbly loam, or very cobbly silt loam.

## Lainand Series

The Lainand series consists of deep, well drained soils that formed in colluvium derived from basalt and in loess mixed with volcanic ash in the upper part. These soils are on hillslopes. Slopes are 30 to 60 percent. Elevation is 2,500 to 3,300 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 48 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Lainand gravelly loam in an area of Lainand-Tankel complex, 30 to 45 percent slopes, about 10 miles southeast of Kittitas, Washington; about 700 feet south and 2,100 feet east of the northwest corner of sec. 20, T. 16 N., R. 21 E.; USGS McDonald Spring topographic quadrangle; latitude 46°51'53" N., longitude 120°13'27" W.

- A1—0 to 4 inches; brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to weak medium and fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and few medium roots; many very fine irregular and tubular pores; 20 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.
- A2—4 to 9 inches; brown (10YR 4/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine and few medium roots; many very fine irregular and tubular pores; 35 percent pebbles and 15 percent cobbles; neutral; clear wavy boundary.
- AB—9 to 22 inches; brown (10YR 4/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few medium roots; many very fine irregular and tubular pores; 40 percent pebbles and 15 percent cobbles; neutral; abrupt wavy boundary.
- 2Bt1—22 to 30 inches; yellowish brown (10YR 5/4) extremely gravelly clay loam, dark brown (7.5YR 3/4) moist; moderate medium and fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common very fine tubular pores; few faint yellowish red (5YR 5/8) clay films on faces of peds; common distinct pressure faces on peds; 50 percent pebbles and 15 percent cobbles; slightly acid; clear wavy boundary.
- 2Bt2—30 to 43 inches; dark brown (7.5YR 4/4) extremely cobbly loam, dark brown (7.5YR 3/4) moist; moderate medium and fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; few faint yellowish red (5YR 5/8) clay films on faces of peds; common distinct pressure faces on peds; 40 percent pebbles and 45 percent cobbles; slightly acid; abrupt irregular boundary.
- 3R—43 inches; basalt.

The mollic epipedon is 20 to 29 inches thick, and it

includes all or part of the argillic horizon. Thickness of the solum and depth to basalt are 40 to 60 inches. The profile is neutral or slightly acid.

The A horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 2 to 3 moist.

The AB horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 3 or 4 dry or moist. It is very cobbly loam or very gravelly loam.

The 2Bt horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is extremely gravelly clay loam, extremely cobbly clay loam, or extremely cobbly loam.

### Laric Series

The Laric series consists of very shallow, well drained soils that formed in loess and in residuum derived from basalt. These soils are on plateaus, ridgetops, and benches. Slopes are 3 to 15 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Laric very gravelly loam, 3 to 15 percent slopes, about 11 miles southwest of Vantage, Washington; about 990 feet west and 950 feet north of the southeast corner of sec. 14, T. 15 N., R. 21 E.; USGS McDonald Spring topographic quadrangle; latitude 46°46'56" N., longitude 120°09'11" W.

A—0 to 3 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; few very fine pores; 40 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.

Bt—3 to 8 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; very hard, firm, sticky and plastic; few fine and very fine roots; few very fine tubular pores; few faint clay films lining pores; 20 percent pebbles; neutral; abrupt irregular boundary.

R—8 inches; basalt; coatings of silica on 30 percent of the surface area.

Depth to basalt is 5 to 12 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The Bt horizon has value of 3 to 5 dry or moist and chroma of 2 to 4 dry or moist. It is gravelly loam or gravelly clay loam. It has weak or moderate, fine and medium subangular blocky structure. It is neutral or slightly alkaline.

### Levnik Series

The Levnik series consists of soils that are shallow to bedrock and are well drained. These soils formed in residuum derived from basalt and in slope alluvium with additions of loess. They are on hillslopes and dissected plateaus. Slopes are 3 to 30 percent. Elevation is 1,200 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Levnik very gravelly loam in an area of Levnik-Nosser-Nevo complex, 3 to 15 percent slopes, about 3 miles southwest of Vantage, Washington; about 2,400 feet north and 400 feet west of the southeast corner of sec. 34, T. 17 N., R. 22 E.; USGS Ginkgo topographic quadrangle; latitude 46°55'10" N., longitude 120°02'28" W.

A—0 to 4 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and few coarse roots; few very fine tubular pores; 40 percent pebbles; neutral; clear wavy boundary.

Bt1—4 to 8 inches; brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium roots and few very fine, fine, and coarse roots; few fine and medium interstitial and tubular pores; common distinct clay films lining pores and on faces of peds; 10 percent pebbles; neutral; clear wavy boundary.

Bt2—8 to 13 inches; brown (10YR 5/3) gravelly clay, dark brown (10YR 3/3) moist; strong fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium and few fine roots; few fine and medium interstitial and tubular roots; common distinct clay films lining pores and on faces of peds; 20 percent pebbles; slightly alkaline; abrupt wavy boundary.

2Bt3—13 to 16 inches; brown (10YR 5/3) extremely gravelly clay, brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; hard, firm, sticky and plastic; few very fine, fine, and medium roots; few fine and medium interstitial and tubular pores; many prominent clay films lining pores and on faces of peds; few faint coatings of lime on vertical and horizontal faces of peds; 45 percent pebbles and 25 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

3R—16 inches; fractured basalt; coatings of silica on 30 percent of surface area.

Depth to basalt is 12 to 20 inches. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist.

The Bt horizon has value of 4 or 5 dry. It is gravelly clay loam, clay loam, or gravelly clay.

The 2Bt horizon has hue of 10YR or 7.5YR and value of 4 or 5 dry. It is extremely gravelly clay, very cobbly clay, or very gravelly clay.

### Lickskillet Series

The Lickskillet series consists of shallow, well drained soils that formed in loess and in residuum derived from basalt. These soils are on plateaus and ridgetops. Slopes are 5 to 45 percent. Elevation is 1,500 to 3,200 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 120 to 150 days.

Typical pedon of Lickskillet very stony silt loam, 5 to 45 percent slopes, about 10 miles north of Sunnyside, Washington; 2,500 feet west and 300 feet north of the southeast corner of sec. 6, T. 11 N., R. 23 E.; USGS Sulphur Spring topographic quadrangle; latitude 46°27'45" N., longitude 119°59'20" W.

A—0 to 3 inches; grayish brown (10YR 5/2) very stony silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and medium roots; few fine tubular pores; 5 percent pebbles and 10 percent stones; neutral; abrupt smooth boundary.

BA—3 to 8 inches; grayish brown (10YR 5/2) very gravelly silt loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and medium roots; few fine tubular pores; 20 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

Bw1—8 to 12 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/3) moist; moderate fine prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common medium roots; few fine tubular pores; 25 percent pebbles and 10 percent cobbles; slightly alkaline; abrupt wavy boundary.

Bw2—12 to 20 inches; yellowish brown (10YR 5/4) very cobbly loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky

structure; slightly hard, friable, slightly sticky and slightly plastic; few medium roots; few fine tubular pores; 30 percent pebbles and 30 percent cobbles; slightly alkaline; abrupt wavy boundary.

2R—20 inches; fractured basalt.

Depth to basalt is 12 to 20 inches. The mollic epipedon is 7 to 12 inches thick.

The A horizon has value of 4 or 5 dry and 2 or 3 moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is very gravelly silt loam, very gravelly clay loam, very gravelly loam, or very cobbly loam. It is neutral to moderately alkaline.

### Malaga Series

The Malaga series consists of very deep, somewhat excessively drained soils that formed in glacial outwash. These soils are on terraces and terrace escarpments. Slopes are 3 to 15 percent. Elevation is 500 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Malaga cobbly sandy loam, 3 to 15 percent slopes, about 12 miles south of Vantage, Washington; about 2,500 feet west and 750 feet south of the northeast corner of sec. 30, T. 15 N., R. 23 E.; USGS Beverly topographic quadrangle; latitude 46°45'56" N., longitude 119°59'26" W.

A—0 to 4 inches; brown (10YR 5/3) cobbly sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 10 percent pebbles and 10 percent cobbles; slightly alkaline; clear smooth boundary.

Bw1—4 to 9 inches; brown (10YR 5/3) gravelly fine sandy loam, brown (10YR 4/3) moist; weak medium platy structure parting to moderate fine subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; 20 percent pebbles and 5 percent cobbles; slightly alkaline; clear smooth boundary.

Bw2—9 to 15 inches; pale brown (10YR 6/3) very gravelly fine sandy loam, brown (10YR 4/3) moist; weak moderate prismatic structure parting to moderate medium subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine roots; 45 percent pebbles and 5 percent cobbles; slightly alkaline; clear smooth boundary.

2C1—15 to 20 inches; light yellowish brown (10YR

6/4) extremely gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; 60 percent pebbles and 10 percent cobbles; slightly alkaline; clear smooth boundary.

2C2—20 to 60 inches; multicolored extremely gravelly coarse sand; single grain; loose; 60 percent pebbles and 20 percent cobbles; slightly alkaline.

Depth to the 2C horizon is 15 to 24 inches.

The A horizon has value of 4 or 5 dry and chroma of 3 or 4 dry. It is gravelly sandy loam, cobbly sandy loam, or gravelly fine sandy loam.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. The Bw1 horizon is gravelly fine sandy loam or gravelly sandy loam, and the Bw2 horizon is very gravelly sandy loam, very gravelly fine sandy loam, extremely gravelly sandy loam, or extremely gravelly loam. The Bw horizon has weak fine or medium subangular blocky structure or weak coarse prismatic structure. It is neutral or slightly alkaline.

The 2C horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 3 or 4 dry or moist. It is very cobbly sand, extremely gravelly coarse sand, or extremely gravelly loamy sand. It is slightly alkaline or moderately alkaline.

## Manastash Series

The Manastash series consists of soils that are moderately deep to a duripan and are well drained (fig. 7). These soils formed in loess and alluvium. They are on alluvial fans. Slopes are 2 to 30 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Manastash loam, 5 to 10 percent slopes, about 9 miles south of Kittitas, Washington; about 250 feet south and 1,320 feet west of northeast corner of sec. 30, T. 16 N, R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°51'10" N., longitude 120°21'51" W.

Ap—0 to 4 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 5 percent pebbles; neutral; abrupt smooth boundary.

AB—4 to 10 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and

slightly plastic; common very fine and few medium roots; many very fine tubular pores; 5 percent pebbles; neutral; abrupt wavy boundary.

Bt1—10 to 16 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; common very fine and fine roots; many very fine tubular pores; many distinct clay films on faces of peds; 20 percent pebbles; neutral; clear wavy boundary.

Bt2—16 to 20 inches; dark brown (7.5YR 4/4) gravelly clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure parting to strong fine and medium angular blocky; very hard, firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; many distinct dark brown (7.5YR 3/3) pressure faces on vertical and horizontal faces of peds and many distinct dark brown (7.5YR 3/3) clay films in pores; 20 percent pebbles; slightly alkaline; abrupt wavy boundary.

Btk—20 to 25 inches; dark brown (7.5YR 4/4) gravelly clay, dark brown (7.5YR 3/4) moist; strong fine angular blocky structure; very hard, firm, very sticky and very plastic; common very fine roots; many distinct dark brown (7.5YR 3/3) pressure faces on faces of peds and many distinct dark brown (7.5YR 3/3) clay films in pores; coatings of lime and silica on underside of 15 percent of rock fragments and pockets of lime with less clay; 20 percent pebbles and 10 percent cobbles; slightly alkaline; abrupt irregular boundary.

2Bkqm—25 to 35 inches; white (10YR 8/1), indurated, lime- and silica-cemented very cobbly duripan, pale brown (10YR 6/3) moist; 30 percent embedded cobbles; gradual smooth boundary.

3Bkqm/C—35 to 60 inches; stratified weakly cemented to indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 20 to 40 inches. It is underlain by stratified weakly cemented to indurated alluvial material. The mollic epipedon is 8 to 17 inches. Depth to secondary lime is 20 to 32 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The AB horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is loam or clay loam.

The Bt horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is gravelly clay loam, gravelly clay, or sandy clay. It is neutral to moderately alkaline.

The Btk horizon has value of 4 or 5 dry and chroma

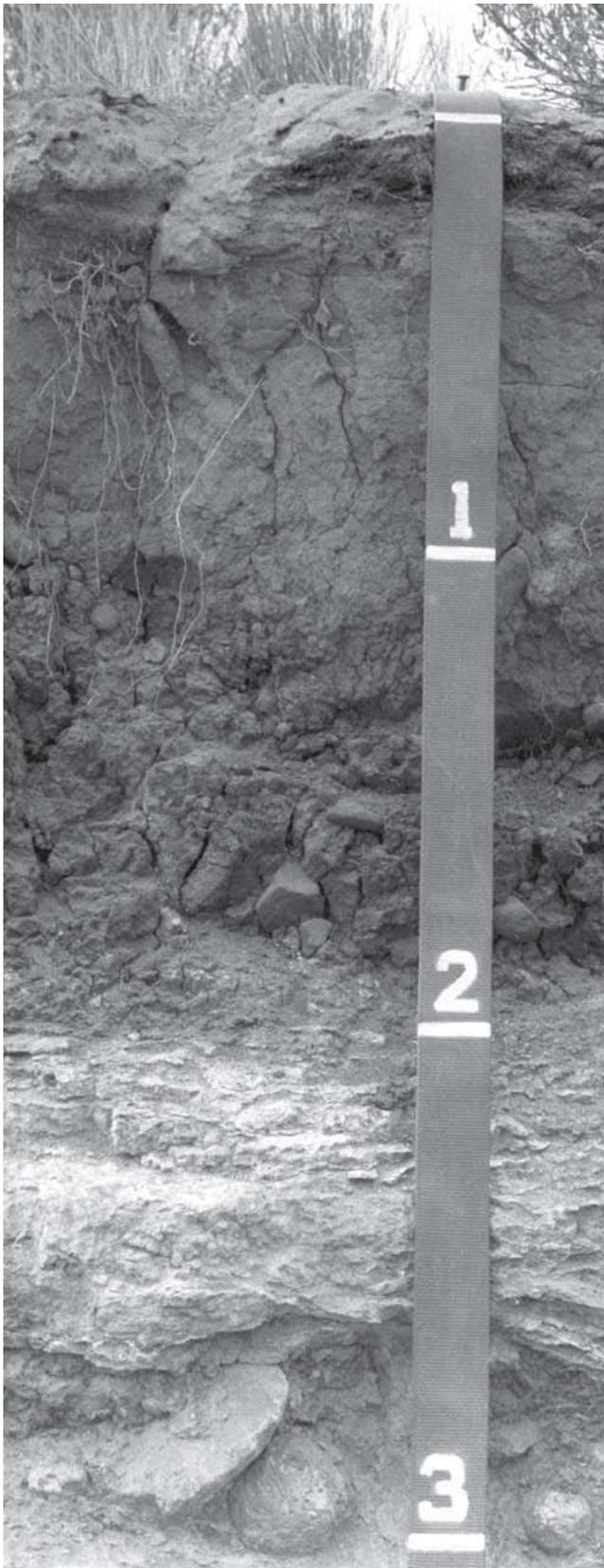


Figure 7.—Typical pedon of Manastash loam, 2 to 5 percent slopes.

of 3 or 4 dry or moist. It is clay, sandy clay, or gravelly clay. It is slightly alkaline or moderately alkaline.

The 2Bqkm horizon is indurated and has a gravelly to extremely gravelly matrix. It is 8 to 36 inches thick and has 1- to 5-inch-thick silica plates.

The 3Bkqm/C horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

### Marlic Series

The Marlic series consists of shallow, well drained soils that formed in loess, slope alluvium, and some residuum derived from basalt. These soils are on dissected plateaus. Slopes are 3 to 15 percent. Elevation is 1,800 to 2,700 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Marlic loam in an area of Marlic-Zen-Laric complex, 3 to 15 percent slopes, about 10 miles west of Vantage, Washington; about 1,400 feet east and 1,700 feet south of the northwest corner of sec. 33, T. 17 N., R. 21 E.; USGS Boyleston topographic quadrangle; latitude 46°55'24" N., longitude 120°12'43" W.

A—0 to 2 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common medium roots; few very fine and fine tubular pores; 5 percent pebbles; neutral; clear wavy boundary.

BA—2 to 6 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common medium roots; few very fine interstitial and tubular pores; 5 percent pebbles; neutral; clear wavy boundary.

Bt1—6 to 12 inches; brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; strong fine and medium prismatic structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine and medium interstitial and tubular pores; common distinct clay films lining pores and on faces of peds; 5 percent pebbles; neutral; abrupt wavy boundary.

2Bt2—12 to 15 inches; dark yellowish brown (10YR 4/4) clay loam, dark brown (10YR 3/3) moist; strong fine and medium prismatic structure; very hard, firm, sticky and plastic; common very fine roots; common fine and medium interstitial and

tubular pores; 10 percent pebbles; neutral; abrupt irregular boundary.

3R—15 inches; fractured basalt; coatings of silica cover 30 percent of the surface area.

Depth to basalt is 12 to 20 inches. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The BA horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It has weak or moderate subangular blocky structure.

The Bt and 2Bt horizons have value of 4 or 5 dry or moist and chroma of 2 or 3 dry or moist. They are clay loam or gravelly clay loam. They have strong or moderate fine and medium prismatic or subangular blocky structure.

## Meloza Series

The Meloza series consists of very deep, well drained soils that formed in material derived from fine textured interbedded sediment. These soils are on alluvial fans. Slopes are 5 to 30 percent. Elevation is 1,450 to 2,500 feet. The average annual precipitation is 8 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Meloza clay loam in an area of Meloza-Roza complex, 5 to 10 percent slopes, about 4 miles east of Selah, Washington; about 1,100 west and 1,900 feet north of the southeast corner of sec. 26, T. 14 N., R. 19 E.; USGS Pomona topographic quadrangle; latitude 46°40'18" N., longitude 120°24'25" W.

A—0 to 3 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine irregular pores; neutral; abrupt smooth boundary.

BAt—3 to 14 inches; brown (10YR 5/3) silty clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to strong medium subangular blocky; very hard, very firm, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; few faint clay films on faces of peds and lining pores; neutral; clear smooth boundary.

Bt—14 to 21 inches; pale brown (10YR 6/3) silty clay loam, dark yellowish brown (10YR 4/4) moist; weak fine prismatic structure parting to moderate medium subangular blocky; slightly hard, firm,

sticky and slightly plastic; few fine roots; common very fine tubular pores; few faint clay films lining pores; neutral; clear smooth boundary.

Btk1—21 to 29 inches; pale brown (10YR 6/3) silty clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; common very fine and few fine tubular pores; few distinct clay films lining pores; few fine coatings of lime in seams; slightly effervescent; moderately alkaline; clear smooth boundary.

Btk2—29 to 49 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, very firm, sticky and plastic; few fine roots; few fine tubular pores; few faint clay films on faces of peds and lining pores; common medium coatings of lime in seams; strongly effervescent; moderately alkaline; clear smooth boundary.

Btk3—49 to 60 inches; light gray (10YR 7/2) clay loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few very fine tubular pores; few distinct clay films on faces of peds and lining pores; common medium irregular soft masses of lime; violently effervescent; moderately alkaline.

Depth to secondary lime is 20 to 60 inches. The profile is 35 to 60 percent clay and 0 to 5 percent rock fragments. Vertical cracks are 1/2 to 1 inch wide.

The A horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 1 or 2 dry or moist.

The BAt horizon has chroma of 2 or 3 dry or moist. It is silty clay loam, clay loam, or silty clay. It is neutral or slightly alkaline.

The Bt and Btk horizons have value of 5 to 7 dry and 4 to 6 moist, and they have chroma of 2 to 4 dry or moist. They are silty clay, silty clay loam, or clay loam. The Bt horizon is neutral or slightly alkaline, and the Btk horizon is slightly alkaline or moderately alkaline.

## Nack Series

The Nack series consists of very deep, somewhat poorly drained soils that formed in alluvium. These soils are on alluvial fans. Slopes are 0 to 5 percent. Elevation is 1,900 to 2,100 feet. The average annual precipitation is 9 to 12 inches. The average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 150 days.

Typical pedon of Nack loam in an area of Nack-Opnish complex, 0 to 2 percent slopes, 1 mile east of Ellensburg, Washington; 2,250 feet north and

600 feet east of the southwest corner of sec. 5, T. 17 N., R. 19 E.; USGS Kittitas topographic quadrangle; latitude 46°59'31" N., longitude 120°29'40" W.

**Ap**—0 to 6 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure parting to weak fine granular; hard, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline; abrupt smooth boundary.

**Btk1**—6 to 12 inches; brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine faint white (10YR 8/1) seams of calcium carbonate; few faint dark yellowish brown (10YR 4/6) clay films lining pores and on faces of peds; common very fine tubular pores; 10 percent pebbles; strongly effervescent; moderately alkaline; clear wavy boundary.

**Btk2**—12 to 15 inches; brown (10YR 5/3) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores and few fine continuous tubular pores; common distinct white (10YR 8/1) seams of calcium carbonate in pores and on faces of peds; common distinct dark yellowish brown (10YR 4/6) clay films lining pores and on faces of peds; 10 percent pebbles; slightly effervescent; moderately alkaline; abrupt wavy boundary.

**2Bt1**—15 to 39 inches; dark yellowish brown (10YR 4/4) extremely gravelly sandy clay, dark brown (10YR 3/3) moist; few fine distinct yellowish red (5YR 5/8) mottles on faces of peds; massive; very hard, firm, sticky and plastic; few very fine roots; common fine tubular pores and few fine irregular pores; many distinct dark yellowish brown (10YR 4/6) clay films on sand grains and rock fragments; 55 percent pebbles and 25 percent cobbles; slightly alkaline; clear wavy boundary.

**2Bt2**—39 to 60 inches; dark yellowish brown (10YR 4/4) extremely gravelly sandy clay loam, dark brown (10YR 3/3) moist; few fine faint yellowish red (5YR 5/8) mottles on faces of peds; massive; very hard, firm, sticky and plastic; few very fine roots; few fine irregular pores; many distinct dark yellowish brown (10YR 4/6) clay films on sand grains and rock fragments; 55 percent pebbles and 25 percent cobbles; slightly alkaline.

Depth to the 2Bt horizon is 10 to 20 inches.

The Ap horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The Btk horizon has value of 3 to 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is clay loam, sandy clay loam, or gravelly sandy clay loam. It is moderately alkaline or strongly alkaline.

The 2Bt horizon has value of 3 or 4 dry or moist and chroma of 3 or 4 dry or moist. It is extremely gravelly sandy clay loam, extremely cobbly sandy clay loam, or extremely gravelly sandy clay. It is slightly alkaline or moderately alkaline. It has few to many mottles that have chroma of 6 to 8.

### Neppel series

The Neppel series consists of very deep, well drained soils that formed in loess and glacial outwash. These soils are on terraces. Slopes are 10 to 15 percent. Elevation is 500 to 1,300 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Neppel loam in an area of Neppel-Scoon complex, 10 to 15 percent slopes, about 13 miles south of Vantage, Washington; about 1,500 feet east and 3,200 feet north of the southwest corner of sec. 36., T. 15 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°44'52" N., longitude 120°01'51" W.

**A**—0 to 3 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; weak medium platy structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine irregular pores; 5 percent pebbles; neutral; clear smooth boundary.

**Bw**—3 to 18 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine, fine, medium, and coarse roots; many very fine irregular pores; 10 percent pebbles; slightly alkaline; clear smooth boundary.

**Bk**—18 to 21 inches; light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; massive; hard, friable, nonsticky and nonplastic; many very fine, medium, and coarse roots; common very fine vesicular pores; common coatings of lime in pores; 10 percent pebbles; strongly effervescent; slightly alkaline; clear wavy boundary.

**2Bkq**—21 to 25 inches; light gray (10YR 7/2) gravelly fine sandy loam, grayish brown (10YR 5/2) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; few very fine vesicular pores; few

weakly cemented 1/4-inch-thick lenses of lime and silica; many coatings of lime in pores; 25 percent pebbles; strongly effervescent; strongly alkaline; gradual wavy boundary.

3Bk—25 to 60 inches; light brownish gray (10YR 6/2) extremely gravelly sand, dark grayish brown (10YR 4/2) moist; loose, firm, nonsticky and nonplastic; many coatings of lime; 65 percent pebbles and 15 percent cobbles; strongly effervescent; strongly alkaline.

Depth to the 3Bk horizon is 24 to 40 inches.

The A horizon has value of 5 or 6 dry and chroma of 2 to 4 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is loam, very fine sandy loam, or fine sandy loam. It is neutral or slightly alkaline.

The Bk horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is loam, fine sandy loam, or very fine sandy loam. It is slightly alkaline or moderately alkaline.

The 2Bkq horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is gravelly very fine sandy loam or gravelly fine sandy loam.

The 3Bk horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is extremely gravelly sand or extremely gravelly coarse sand.

## Nevo Series

The Nevo series consists of very shallow, well drained soils that formed in loess and in residuum derived from basalt. These soils are on plateaus, hillslopes, ridgetops, and benches. Slopes are 3 to 45 percent. Elevation is 500 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Nevo very cobbly loam in an area of Nevo complex, 3 to 15 percent slopes, about 14 miles south of Vantage, Washington; about 500 feet south and 2,500 feet east of the northwest corner of sec. 1, T. 14 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°44'10" N., longitude 120°00'31" W.

A—0 to 2 inches; pale brown (10YR 6/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium and thick platy structure parting to weak medium granular; soft, very friable, nonsticky and nonplastic; many very fine roots; few very fine tubular pores; 20 percent pebbles

and 25 percent cobbles; neutral; clear smooth boundary.

Bt—2 to 8 inches; brown (7.5YR 4/2) very gravelly clay loam, very dark brown (10YR 3/3) moist; moderate fine subangular blocky structure parting to moderate fine granular; slightly hard, friable, sticky and plastic; common very fine roots; many very fine tubular pores; common distinct clay films on faces of peds; 25 percent pebbles and 20 percent cobbles; neutral; clear smooth boundary.

R—8 inches; fractured basalt; coatings of silica cover 30 percent of total surface area.

Depth to basalt is 5 to 10 inches. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist. It is extremely gravelly sandy loam, very cobbly loam, or stony sandy loam.

The Bt horizon has value of 4 or 5 dry and chroma of 3 or 4 dry or moist. It is extremely gravelly loam, very cobbly loam, or very gravelly clay loam.

## Niben Series

The Niben series consists of very deep, well drained soils that formed in interbedded sediment and slope alluvium with additions of loess. These soils are on hillslopes, shoulders, and footslopes of dissected plateaus. Slopes are 3 to 30 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Niben loam in an area of Niben-Vantage-Benwy complex, 15 to 30 percent slopes, about 9 miles west of Vantage, Washington; about 1,800 feet west and 2,000 feet north of the southeast corner of sec. 3, T. 16 N., R. 21 E.; USGS Boyleston topographic quadrangle; latitude 46°54'09" N., longitude 120°11'01" W.

A—0 to 4 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few coarse roots; many very fine and fine tubular pores; 10 percent pebbles; slightly alkaline; clear wavy boundary.

Bt1—4 to 13 inches; brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to fine subangular blocky; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few coarse roots; common fine and

medium tubular pores; few faint clay films lining pores and on faces of peds; 5 percent pebbles; slightly alkaline; clear wavy boundary.

**Bt2**—13 to 18 inches; brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to fine subangular blocky; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few coarse roots; many very fine and fine interstitial and tubular pores; common distinct clay films lining pores and on faces of peds; 10 percent pebbles; slightly alkaline; abrupt wavy boundary.

**2Bt3**—18 to 26 inches; brown (10YR 4/3) clay, very dark grayish brown (10YR 3/2) moist; strong fine and medium prismatic structure; hard, friable, sticky and plastic; common very fine roots and few fine and coarse roots; many fine and medium interstitial and tubular pores; common distinct clay films lining pores and on faces of peds; 5 percent pebbles and 5 percent cobbles; slightly alkaline; clear wavy boundary.

**2Btk1**—26 to 42 inches; brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; strong fine and medium prismatic structure; hard, friable, sticky and plastic; few very fine, medium, and coarse roots; common fine and medium interstitial and tubular pores; many prominent clay films lining pores and on faces of peds; few faint coatings of lime lining pores; 5 percent pebbles; slightly effervescent in pores; slightly alkaline; clear wavy boundary.

**3Btk2**—42 to 51 inches; brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; strong fine and medium prismatic structure parting to strong fine angular blocky; very hard, friable, sticky and plastic; few very fine, medium, and coarse roots; few fine and medium interstitial and tubular pores; many prominent clay films lining pores and on faces of peds; many prominent coatings of lime on faces of peds; 5 percent pebbles; slightly effervescent; moderately alkaline; abrupt wavy boundary.

**4Btk3**—51 to 60 inches; brown (7.5YR 4/3) clay loam, dark brown (7.5YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common fine and medium interstitial and tubular pores; few distinct clay films lining pores and on faces of peds; few distinct coatings of lime lining pores, on faces of peds, and on rock fragments; 5 percent pebbles; slightly effervescent; moderately alkaline.

The mollic epipedon is more than 25 inches thick. Depth to the 2Bt horizon discontinuity is 12 to 20 inches, and depth to secondary lime is 24 to 40 inches.

The A horizon has value of 3 or 4 dry and chroma of 2 or 3 dry or moist.

The Bt horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The 2Bt horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is clay or clay loam. It is neutral or slightly alkaline.

The 3Btk horizon has value of 3 or 4 dry or moist and chroma of 2 or 3 dry or moist. It is clay or clay loam. It is slightly alkaline or moderately alkaline.

The 4Btk horizon has hue of 7.5YR or 10YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist. It is clay, clay loam, or gravelly clay loam. It is slightly alkaline or moderately alkaline.

## Norod Series

The Norod series consists of moderately deep, well drained soils that formed in colluvium derived from basalt and in loess mixed with volcanic ash in the upper part. These soils are on north-facing hillslopes. Slopes are 15 to 75 percent. Elevation is 1,800 to 2,500 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Norod cobbly loam in an area of Norod-Horseflat complex, 45 to 60 percent slopes, about 7 miles south of Vantage, Washington; about 1,100 feet south and 1,500 feet west of northeast corner of sec. 31, T. 16 N., R. 23 E.; USGS Beverly topographic quadrangle; latitude 46°50'14" N., longitude 119°59'12" W.

**A**—0 to 4 inches; brown (10YR 4/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular and tubular pores; 10 percent pebbles and 10 percent cobbles; neutral; clear smooth boundary.

**AB**—4 to 10 inches; brown (10YR 4/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 5 percent pebbles and 10 percent cobbles; neutral; abrupt smooth boundary.

**2Bt1**—10 to 23 inches; brown (10YR 4/3) very gravelly

loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; many faint pressure faces on peds; common distinct clay films on faces of peds; 20 percent pebbles and 15 percent cobbles; neutral; clear smooth boundary.

2Bt2—23 to 28 inches; dark yellowish brown (10YR 4/4) very cobbly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; common distinct clay films on faces of peds; 25 percent pebbles and 30 percent cobbles; neutral; clear smooth boundary.

2Btk—28 to 33 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to weak coarse and medium subangular blocky; loose, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; few distinct clay films on faces of peds; 30 percent pebbles and 35 percent cobbles; slightly effervescent; slightly alkaline; abrupt wavy boundary.

3R—33 inches; basalt.

Depth to basalt is 25 to 40 inches. Depth to secondary lime is 25 to 38 inches.

The A and AB horizons have value of 4 or 5 dry and 2 or 3 moist, and they have chroma of 2 or 3 moist. They are neutral or slightly alkaline.

The 2Bt and 2Btk horizons have value of 4 or 5 dry and 3 or 4 moist, and they have chroma of 2 to 4 dry or moist. The 2Bt horizon is very gravelly loam, very gravelly clay loam, or very cobbly loam, and the 2Btk horizon is extremely cobbly loam, very cobbly loam, or extremely gravelly clay loam. The 2Bt horizon is neutral or slightly alkaline. The 2Btk horizon is slightly alkaline or moderately alkaline.

## Nosser Series

The Nosser series consists of moderately deep, well drained soils that formed in loess, slope alluvium, and residuum derived from basalt. These soils are on hillslopes and dissected plateaus. Slopes are 3 to 30 percent. Elevation is 1,200 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Nosser gravelly loam in an area of Levnik-Nosser-Nevo complex, 3 to 15 percent slopes,

about 3 miles southwest of Vantage, Washington; about 2,300 feet north and 700 feet west of the southeast corner of sec. 34, T. 17 N., R. 22 E.; USGS Ginkgo topographic quadrangle; latitude 46°55'04" N., longitude 120°03'08" W.

A—0 to 3 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; few fine and medium tubular pores; 20 percent pebbles; neutral; clear wavy boundary.

Bt1—3 to 10 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; common fine and medium tubular pores; few faint clay films lining pores and on faces of peds; 5 percent pebbles; neutral; clear wavy boundary.

Bt2—10 to 18 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; few fine and medium roots; common fine and medium interstitial and tubular pores; few faint clay films lining pores and on faces of peds; 15 percent pebbles and 5 percent cobbles; neutral; clear wavy boundary.

2Btkq—18 to 22 inches; brown (10YR 5/3) extremely gravelly clay loam, dark brown (10YR 3/3) moist; strong fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; few fine roots; common fine and medium irregular pores; few faint clay films lining pores and on faces of peds; few fine and medium irregular silica durinodes; few fine aggregates of lime in irregular soft masses; 50 percent pebbles and 15 percent cobbles; slightly alkaline; abrupt smooth boundary.

3R—22 inches; fractured basalt; coatings of silica cover more than 30 percent of total surface area.

Depth to basalt is 20 to 40 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist. The Bt2 horizon is gravelly clay loam or clay loam. The Bt horizon is neutral or slightly alkaline.

The 2Btkq horizon has hue of 7.5YR or 10YR and value of 4 or 5 dry and 3 or 4 moist. It is very cobbly clay loam, extremely gravelly clay loam, or very gravelly clay loam. It is slightly alkaline or moderately alkaline.

## Opnish Series

The Opnish series consists of very deep, moderately well drained soils that formed in alluvium. These soils are on alluvial fans. Slopes are 0 to 2 percent. Elevation is 1,900 to 2,100 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 150 days.

Typical pedon of Opnish loam in an area of Nack-Opnish complex, 0 to 2 percent slopes, about 4 miles southeast of Ellensburg, Washington; 700 feet east and 400 feet south of the northwest corner of sec. 10, T. 17 N., R. 19 E.; USGS Kittitas topographic quadrangle; latitude 46°59'05" N., longitude 120°27'08" W.

- Ap—0 to 8 inches; dark gray (10YR 4/1) loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores; slightly effervescent; moderately alkaline; abrupt smooth boundary.
- ABt—8 to 13 inches; dark gray (10YR 4/1) clay loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure parting to moderate medium granular; hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular and vesicular pores; few faint soft masses of lime throughout; few faint dark yellowish brown (10YR 4/4) clay films in pores and on faces of peds; slightly effervescent; moderately alkaline; clear wavy boundary.
- Btk1—13 to 19 inches; dark grayish brown (10YR 4/2) clay loam, very dark gray (10YR 3/1) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, friable, sticky and plastic; common very fine roots; common fine tubular and vesicular pores; common medium soft masses of lime throughout; few faint clay films lining pores and on faces of peds; slightly effervescent; moderately alkaline; clear wavy boundary.
- Btk2—19 to 26 inches; dark grayish brown (10YR 4/2) clay loam, very dark gray (10YR 3/1) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, friable, sticky and plastic; common very fine roots; common fine tubular and vesicular pores; common distinct soft masses of lime throughout; common distinct clay films lining pores and on faces of peds; 5 percent pebbles; slightly

effervescent; moderately alkaline; abrupt wavy boundary.

2Btkg3—26 to 37 inches; dark grayish brown (10YR 4/2) extremely gravelly clay loam, very dark grayish brown (10YR 3/2) moist; few fine faint strong brown (7.5YR 4/6) redoximorphic concentrations on faces of peds; moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, friable, sticky and plastic; few very fine roots; common fine irregular and tubular pores; common distinct white (10YR 8/1) coatings of carbonate on faces of peds and on rock fragments; common distinct clay films lining pores and on faces of peds; 65 percent pebbles and 10 percent cobbles; slightly effervescent; moderately alkaline; clear wavy boundary.

2Btg4—37 to 47 inches; brown (10YR 4/3) extremely gravelly sandy clay, very dark grayish brown (10YR 3/2) moist; few fine faint strong brown (7.5YR 4/6) redoximorphic concentrations on faces of peds; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine roots; few very fine tubular pores; 60 percent pebbles and 15 percent cobbles; slightly alkaline; abrupt smooth boundary.

2Btg5—47 to 60 inches; brown (10YR 4/3) extremely gravelly sandy clay, very dark grayish brown (10YR 3/2) moist; few fine faint strong brown (7.5YR 4/6) redoximorphic concentrations on faces of peds; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine roots; few fine tubular and vesicular pores; 50 percent pebbles and 30 percent cobbles; slightly alkaline.

Thickness of the mollic epipedon is 40 to 60 inches. Depth to the 2Btkg horizon is 20 to 40 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 1 or 2 dry or moist.

The ABt horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 1 or 2 dry or moist. It is clay loam or loam. It is moderately alkaline or strongly alkaline.

The Btk horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 1 to 3 dry or moist. It is clay loam or sandy clay. It is moderately alkaline or strongly alkaline.

The 2Btkg and 2Btg horizons have value of 4 or 5 dry and 3 or 4 moist, and they have chroma of 2 or 3 dry or moist. They are extremely gravelly clay loam, very gravelly clay loam, or extremely gravelly sandy clay. The horizons are slightly alkaline or moderately alkaline.

## Orthents

Orthents consists of very deep, somewhat excessively drained soils that formed in alluvium. These soils are on flood plains and low terraces. Slopes are 0 to 5 percent. Elevation is 500 to 2,500 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 130 to 195 days.

Representative pedon of Orthents very cobbly loamy sand in an area of Haploxerolls-Orthents-Aquolls complex, channeled, 0 to 5 percent slopes, about 2,400 feet west and 2,500 feet north of the southeast corner of sec. 24, T. 15 N., R. 22 E.; USGS Doris topographic quadrangle; latitude 46°46'30" N., longitude 120°00'38" W.

AC—0 to 6 inches; grayish brown (10YR 5/2) very cobbly loamy sand, very dark gray (10YR 3/1) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; 20 percent pebbles and 30 percent cobbles; neutral; clear smooth boundary.

2C1—6 to 36 inches; grayish brown (10YR 5/2) extremely gravelly sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; 60 percent pebbles and 15 percent cobbles; slightly alkaline; abrupt smooth boundary.

2C2—36 to 60 inches; grayish brown (10YR 5/2) extremely gravelly sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; 60 percent pebbles and 20 percent cobbles; slightly effervescent; moderately alkaline.

The particle-size control section is 35 to 80 percent rock fragments by volume. Depth to the 2C horizon is 10 to 20 inches.

The AC horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 1 to 3 dry or moist. It is loam, very cobbly loamy sand, very gravelly loamy sand, or extremely gravelly loamy sand. It is neutral or slightly alkaline.

The 2C horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is extremely gravelly loamy sand, very gravelly loamy sand, or extremely gravelly sand. It is slightly alkaline or moderately alkaline.

## Palerf Series

The Palerf series consists of moderately deep, well drained soils that formed in residuum and colluvium

derived from basalt and in loess mixed with volcanic ash in the upper part. These soils are on north-facing hillslopes. Slopes are 15 to 45 percent. Elevation is 1,800 to 2,500 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Palerf gravelly loam in an area of Ralock-Palerf complex, 30 to 45 percent slopes, about 9 miles southeast of Kittitas, Washington; about 1,100 feet west and 1,700 feet south of the northeast corner of sec. 26, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°50'52" N., longitude 120°16'45" W.

A—0 to 4 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few medium roots; many very fine irregular and tubular pores; 15 percent pebbles; neutral; abrupt smooth boundary.

AB—4 to 9 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few medium roots; common very fine tubular pores; 15 percent pebbles; neutral; abrupt wavy boundary.

2Bt1—9 to 14 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; common very fine roots; common very fine tubular pores; many faint pressure faces on peds; many faint clay films lining pores; 35 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

2Bt2—14 to 21 inches; brown (10YR 5/3) very gravelly clay, dark brown (10YR 3/3) moist; strong fine and medium angular blocky structure; very hard, very friable, sticky and plastic; common very fine roots; common very fine tubular pores; many distinct dark brown (7.5YR 3/2) clay films lining pores; 40 percent pebbles and 10 percent cobbles; slightly alkaline; clear wavy boundary.

2Bt3—21 to 27 inches; brown (10YR 5/3) very gravelly clay, dark brown (10YR 3/3) moist; strong fine and medium angular blocky structure; very hard, very friable, very sticky and very plastic; common very fine roots; common very fine tubular pores; many faint pressure faces on faces of peds; many distinct dark brown (7.5YR 3/2) clay films in root channels; 40 percent pebbles and 15 percent

cobbles; moderately alkaline; abrupt wavy boundary.

2Btk—27 to 35 inches; brown (10YR 5/3) extremely gravelly clay, dark brown (10YR 3/3) moist; strong coarse prismatic structure and strong medium angular blocky; very hard, very firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; common prominent white (10YR 8/1) coatings of lime on faces of peds; many faint pressure faces on peds; 45 percent pebbles and 20 percent cobbles; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3R—35 inches; basalt.

Depth to basalt is 25 to 40 inches. Depth to secondary lime is 25 to 35 inches. The mollic epipedon is more than 23 inches thick, and it includes all or part of the argillic horizon.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist. It is neutral or slightly alkaline.

The 2Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6 dry and 2 or 3 moist, and chroma of 2 or 3 dry or moist. It is very cobbly clay loam, very gravelly clay, or very gravelly clay loam. It is neutral to moderately alkaline.

The 2Btk horizon has hue of 10YR or 7.5YR, value of 5 or 6 dry and 3 to 5 moist, and chroma of 3 or 4 dry or moist. It is very cobbly clay, extremely cobbly clay loam, or extremely gravelly clay. It is slightly alkaline or moderately alkaline.

## Palixerolls

Palixerolls consists of moderately deep, well drained soils that formed in loess, residuum, and slope alluvium. These soils are on footslopes and hillslopes. Slopes are 15 to 30 percent. Elevation is 2,600 to 3,000 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 48 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Palixerolls gravelly clay loam in an area of Palixerolls-Patron complex, 15 to 30 percent slopes, about 9½ miles southeast of Kittitas, Washington; about 1,600 feet west and 1,700 feet north of the southeast corner of sec. 6, T. 16 N., R. 21 E.; USGS Boyleston topographic quadrangle; latitude 46°54'08" N., longitude 120°14'23" W.

A—0 to 5 inches; dark grayish brown (10YR 4/2) gravelly clay loam, very dark grayish brown

(10YR 3/2) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine and medium interstitial pores; 15 percent pebbles; neutral; abrupt wavy boundary.

2Bt1—5 to 12 inches; brown (10YR 4/3) gravelly clay, very dark grayish brown (10YR 3/2) moist; strong fine and medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common fine and medium interstitial pores; common distinct clay films lining pores and on faces of peds; 15 percent pebbles; neutral; clear wavy boundary.

2Bt2—12 to 21 inches; brown (10YR 4/3) very gravelly clay, very dark grayish brown (10YR 3/2) moist; strong fine and medium angular blocky structure; very hard, very firm, very sticky and very plastic; common fine and medium roots; common fine and medium interstitial pores; many prominent clay films lining pores and on faces of peds; 25 percent pebbles and 10 percent cobbles; slightly alkaline; abrupt wavy boundary.

3Bk—21 to 35 inches; light brownish gray (2.5Y 6/2) very gravelly clay loam, dark grayish brown (2.5Y 4/2) moist; weak fine and medium angular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; common fine and medium interstitial pores; 30 percent pebbles and 15 percent cobbles; strongly effervescent; moderately alkaline; abrupt wavy boundary.

4R—35 inches; fractured basalt.

Depth to basalt is 20 to 40 inches.

The A horizon has value of 3 or 4 dry or moist and chroma of 2 or 3 dry or moist.

The 2Bt horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is clay, gravelly clay, or very gravelly clay. It is neutral or slightly alkaline.

The 3Bk horizon has value of 5 or 6 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is gravelly clay loam, very gravelly clay loam, or extremely gravelly clay.

## Patron Series

The Patron series consists of deep and very deep, well drained soils that formed in residuum, colluvium, slope alluvium, loess, and interbedded sediment mixed with volcanic ash in the upper part. These soils are on hillslopes. Slopes are 15 to 45 percent. Elevation is 1,900 to 3,300 feet. The average annual precipitation is 12 to 15 inches, the average annual air

temperature is 46 to 49 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Patron gravelly silt loam in an area of Tanksel-Patron-Camaspatch complex, 15 to 30 percent slopes, about 8 miles northeast of Moxee City, Washington; about 300 feet east and 2,400 feet north of the southwest corner of sec. 28, T. 16 N., R. 21 E.; USGS McDonald Spring topographic quadrangle; latitude 46°50'41" N., longitude 120°11'33" W.

- A—0 to 3 inches; brown (10YR 4/3) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; 20 percent pebbles; neutral; clear smooth boundary.
- AB—3 to 12 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; 20 percent pebbles and 5 percent cobbles; neutral; abrupt wavy boundary.
- 2Bt1—12 to 23 inches; brown (10YR 4/3) gravelly silty clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; common fine and few coarse roots; common distinct clay films and pressure faces on peds; 20 percent pebbles and 5 percent cobbles; neutral; clear wavy boundary.
- 2Bt2—23 to 35 inches; yellowish brown (10YR 5/4) gravelly silty clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and few medium roots; many very fine and fine tubular pores; common distinct clay films and pressure faces on peds; 25 percent pebbles; neutral; clear wavy boundary.
- 2Bt3—35 to 60 inches; yellowish brown (10YR 5/4) very gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; few very fine and fine roots; many very fine tubular pores; common distinct clay films and pressure faces on peds; 35 percent pebbles and 10 percent cobbles; neutral.

The mollic epipedon is more than 20 inches thick, and it includes all or part of the argillic horizon. Depth to basalt is 40 to 60 inches or more.

The A horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is gravelly silt loam, silt loam, or loam.

The 2Bt horizon has value of 5 or 6 dry and 2 or 3

moist, and it has chroma of 2 to 4 dry or moist. The upper part is clay, clay loam, gravelly clay, gravelly silty clay loam, or gravelly clay loam, and the lower part is gravelly clay loam, cobbly clay, gravelly clay, very gravelly clay loam, very cobbly clay, or extremely gravelly clay. The horizon is neutral to moderately alkaline.

## Prosser Series

The Prosser series consists of moderately deep, well drained soils that formed in loess and glaciofluvial sediment. These soils are on benches and hillslopes. Slopes are 3 to 15 percent. Elevation is 500 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Prosser silt loam, 10 to 15 percent slopes, about 17 miles south of Vantage, Washington; about 2,500 feet east and 2,400 feet south of the northwest corner of sec. 19, T. 14 N., R. 23 E.; USGS Priest Rapids topographic quadrangle; latitude 46°41'13" N., longitude 119°59'24" W.

- A—0 to 4 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine irregular pores; neutral; clear smooth boundary.
- Bw1—4 to 10 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; slightly alkaline; clear smooth boundary.
- Bw2—10 to 20 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; soft, friable, nonsticky and nonplastic; common very fine roots; common very fine and fine tubular pores; slightly alkaline; clear smooth boundary.
- Bk—20 to 26 inches; very pale brown (10YR 7/4) silt loam, yellowish brown (10YR 5/4) moist; weak coarse prismatic structure; soft, friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; many coatings of lime in pores; strongly effervescent; moderately alkaline; clear wavy boundary.
- 2R—26 inches; basalt.

Depth to basalt is 20 to 40 inches. Depth to the Bk horizon is 20 to 40 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry and 2 to 4 moist. It is silt loam or very fine sandy loam. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 or 6 dry and 4 or 5 moist, and it has chroma of 2 to 4 dry or moist. It is very fine sandy loam or silt loam. Some pedons do not have a Bk horizon, and the only accumulations of lime are a thin cap at the lithic contact and in fractures in the bedrock.

## Ralock Series

The Ralock Series consists of very deep, well drained soils that formed in loess mixed with volcanic ash in the upper part and in colluvium derived from basalt (fig. 8). These soils are on north-facing hillslopes. Slopes are 15 to 60 percent. Elevation is 1,800 to 2,500 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Ralock silt loam in an area of Ralock-Palerf complex, 15 to 30 percent slopes, about 9 miles southeast of Kittitas, Washington; about 1,100 feet west and 1,500 feet south of the northeast corner of sec. 26, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°50'54" N., longitude 120°16'45" W.

A—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) and very dark brown (10YR 2/2) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine irregular and tubular pores; 5 percent pebbles; neutral; abrupt smooth boundary.

AB—4 to 14 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; 5 percent pebbles; neutral; abrupt smooth boundary.

2Bt1—14 to 22 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine tubular pores; common distinct clay films lining pores; 5 percent pebbles; neutral; clear wavy boundary.

2Bt2—22 to 27 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common distinct clay films lining pores and on faces of peds; 10 percent pebbles; slightly alkaline; clear wavy boundary.

2Btk1—27 to 36 inches; yellowish brown (10YR 5/4) gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; common distinct clay films lining pores and on faces of peds; few fine faint coatings of carbonate lining root channels and pores; 20 percent pebbles; slightly effervescent; moderately alkaline; abrupt wavy boundary.

2Btk2—36 to 49 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 5/3) moist; weak fine subangular blocky structure parting to weak medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; common distinct clay films lining pores and on faces of peds; common very fine faint coatings of carbonate in root channels and pores; many fine rounded soft masses of lime; 20 percent pebbles; violently effervescent; strongly alkaline; clear wavy boundary.

2Btk3—49 to 60 inches; brown (10YR 5/3) gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine tubular pores; many faint light gray (10YR 7/2) coatings of lime; few faint dark brown (7.5YR 4/4) clay films lining pores and on faces of peds; 30 percent pebbles; slightly effervescent; moderately alkaline.

Depth to secondary lime is 24 to 38 inches. The mollic epipedon is 20 to 29 inches thick.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist. It is neutral or slightly alkaline.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist. It is gravelly silt loam or silt loam.

The 2Bt horizon has value of 5 or 6 dry and 3 to 5 moist, and it has chroma of 3 or 4 dry or moist. It is silt loam, gravelly silt loam, or gravelly clay loam. It is neutral or slightly alkaline.

The 2Btk horizon has value of 5 or 6 dry and 4 or 5 moist, and it has chroma of 3 or 4 dry or moist. The upper part is gravelly clay loam, gravelly silt loam, or gravelly loam, and the lower part is very gravelly clay

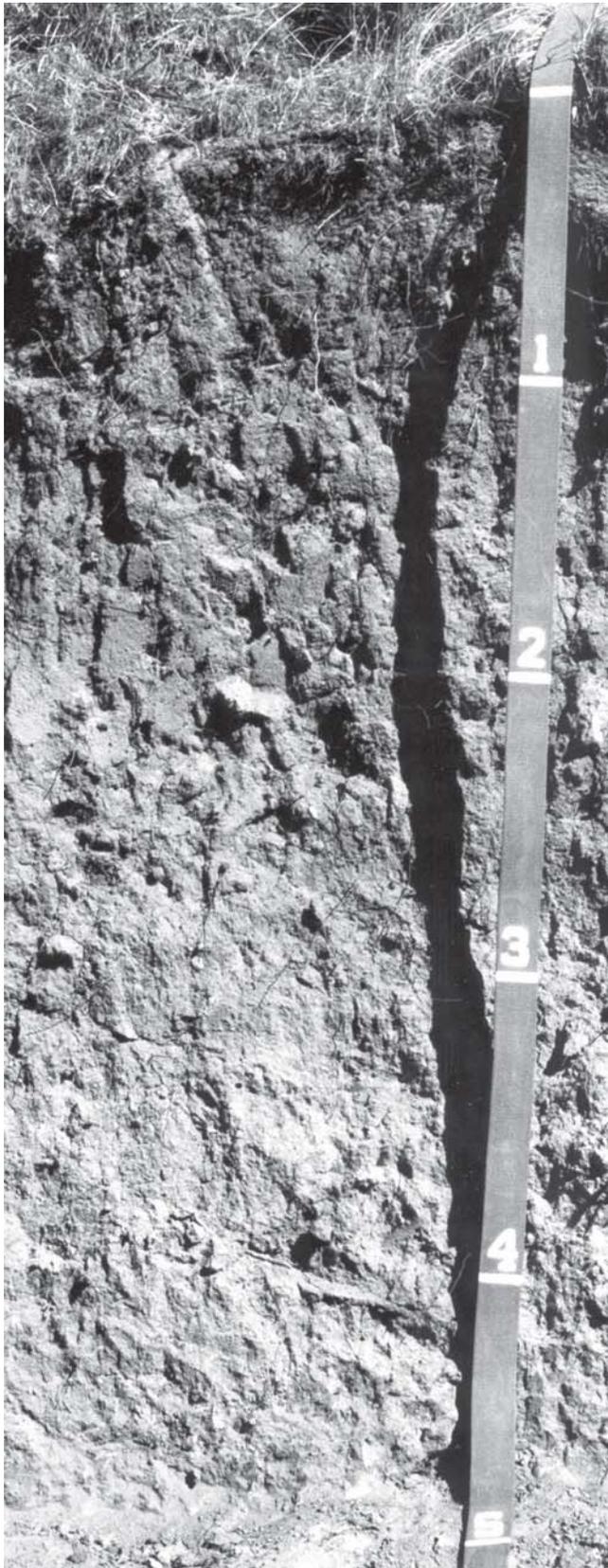


Figure 8.—Typical pedon of a Ralock silt loam in an area of Palerf-Ralock-Vantage complex, 15 to 30 percent slopes.

loam, very gravelly silt loam, or gravelly loam. It is slightly alkaline to strongly alkaline.

### Rock Creek Series

The Rock Creek series consists of very shallow and shallow, well drained soils that formed in loess and in residuum derived from basalt. These soils are on plateaus and ridgetops. Slopes are 0 to 30 percent. Elevation is 1,200 to 3,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 120 to 170 days.

Typical pedon of Rock Creek very stony silt loam, 0 to 30 percent slopes, about 400 feet west and 75 feet north of the southeast corner of sec. 1, T. 15 N., R. 17 E.; USGS Wenas Lake topographic quadrangle; latitude 46°48'41" N., longitude 120°38'16" W.

- A—0 to 2 inches; grayish brown (10YR 5/2) very stony silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine roots; few fine tubular pores, 15 percent pebbles, 10 percent cobbles, and 10 percent stones; neutral; clear smooth boundary.
- Bt—2 to 10 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; thin continuous clay films on faces of peds; few dark organic stains on faces of peds; 30 percent pebbles and 20 percent cobbles; neutral; clear smooth boundary.
- R—10 inches; fractured basalt.

Depth to basalt is 8 to 20 inches. The particle-size control section is 35 to 45 percent clay and 35 to 90 percent rock fragments. The profile is neutral or slightly acid.

The A horizon has hue of 5YR to 10YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist.

The Bt horizon has hue of 5YR or 7.5YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist. It is extremely cobbly, extremely gravelly, very gravelly, or very cobbly clay loam or clay.

### Rollinger Series

The Rollinger series consists of very deep, well drained soils that formed in loess mixed with volcanic ash and slope alluvium. These soils are on north-facing toeslopes, hillslopes, and piedmont slopes. Slopes are 5 to 60 percent. Elevation is 1,500

to 2,900 feet. The average annual precipitation is about 12 to 15 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Rollinger silt loam, 10 to 15 percent slopes, about 6 miles south of Kittitas, Washington; about 1,000 feet east and 1,800 feet south of the northwest corner of sec. 12, T. 16 N., R. 19 E.; USGS Kittitas topographic quadrangle; latitude 46°53'34" N., longitude 120°23'59" W.

Ap1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak and moderate fine and medium subangular blocky structure parting to fine granular; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots and few very fine roots; many very fine and fine tubular pores; neutral; abrupt smooth boundary.

Ap2—6 to 11 inches; brown (10YR 4/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots and few coarse roots; common fine and few medium tubular pores; slightly alkaline; abrupt smooth boundary.

2Bt1—11 to 19 inches; brown (10YR 5/3) silty clay loam, dark brown (10YR 3/3) moist; strong coarse prismatic structure parting to strong fine and medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; common fine and medium irregular and tubular pores; few faint clay films lining pores and on faces of peds; slightly alkaline; clear wavy boundary.

2Bt2—19 to 27 inches; brown (10YR 5/3) silty clay loam, dark brown (10YR 3/3) moist; strong coarse prismatic structure parting to strong fine and medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; common fine and medium irregular and tubular pores; few faint clay films lining pores and on faces of peds; slightly alkaline; abrupt wavy boundary.

3Bw—27 to 31 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and medium tubular pores; irregular pockets of pale brown (10YR 6/3) ash; 10 percent pebbles; slightly alkaline; clear wavy boundary.

3Bk—31 to 40 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to fine subangular blocky; slightly hard, friable, slightly sticky and nonplastic; few very fine, fine, and medium roots; many fine and medium irregular and tubular pores; common distinct coatings of lime in root channels and pores; slightly effervescent; slightly alkaline; abrupt wavy boundary.

4Btk—40 to 48 inches; brown (10YR 4/3) silty clay loam, dark brown (10YR 3/3) moist; moderate fine and medium prismatic structure; hard, friable, sticky and plastic; few fine and medium roots; many fine and medium irregular pores and common fine and medium tubular pores; few medium soft masses of light gray (10YR 7/2) carbonate; many distinct dark brown (7.5YR 4/3) clay films lining pores and on faces of peds; slightly effervescent; moderately alkaline; clear wavy boundary.

5Bk1—48 to 51 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium prismatic structure; hard, friable, slightly sticky and slightly plastic; few fine roots; many fine and medium irregular pores and few fine tubular pores; moderately effervescent; strongly alkaline; clear wavy boundary.

6Bk2—51 to 60 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; moderate medium and coarse prismatic structure; hard, firm, slightly sticky and nonplastic; few fine roots; many fine and medium irregular pores and few fine tubular pores; moderately effervescent; strongly alkaline.

Thickness of the mollic epipedon is more than 40 inches. Depth to secondary lime is 28 to 42 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The 2Bt horizon has value of 4 or 5 dry and 2 or 3 moist. It has strong or moderate prismatic and subangular blocky structure. It is neutral or slightly alkaline.

The 3Bw horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is as much as 15 percent rock fragments.

The 3Bk horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is slightly alkaline or moderately alkaline.

The 4Bk horizon, where present, has value of 4 or 5 dry and 2 or 3 moist. It is slightly alkaline or moderately alkaline.

The 5Bk and 6Bk horizons, where present, have value of 5 or 6 dry and 3 or 4 moist, and they have chroma of 3 or 4 dry or moist. They are silt loam, loam,

or sandy loam. They are moderately alkaline or strongly alkaline.

## Roza Series

The Roza series consists of very deep, well drained soils that formed in material derived from fine textured interbedded sediment. These soils are on alluvial fans. Slopes are 5 to 30 percent. Elevation is 1,450 to 2,500 feet. The average annual precipitation is 8 to 12 inches, the average annual air temperature is 49 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Roza clay in an area of Meloza-Roza complex, 10 to 15 percent slopes, about 3 miles northeast of Selah, Washington; about 800 feet south and 500 feet west of the northeast corner of sec. 22, T. 14 N., R. 19 E.; USGS Pomona topographic quadrangle; latitude 46°41'30" N., longitude 120°25'31" W.

A—0 to 3 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure parting to moderate medium granular; hard, firm, very sticky and plastic; many very fine and fine roots; common very fine irregular pores; 1/2- to 3/4-inch-wide vertical cracks forming a polyhedron; 2 percent pebbles; slightly alkaline; clear smooth boundary.

Bw1—3 to 10 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate medium platy structure parting to moderate medium subangular blocky; hard, firm, very sticky and plastic; few very fine roots; common very fine and fine irregular pores; 1/2-inch-wide vertical cracks; slightly alkaline; clear smooth boundary.

Bw2—10 to 18 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate thick platy structure parting to moderate coarse subangular blocky; hard, firm, very sticky and plastic; few very fine roots; common very fine and fine irregular pores; 1/4-inch-wide vertical cracks; slightly alkaline; clear smooth boundary.

Bk1—18 to 29 inches; pale olive (5Y 6/3) clay, olive (5Y 5/3) moist; moderate coarse prismatic structure parting to weak medium subangular blocky; very hard, firm, very sticky and plastic; few very fine roots; common very fine irregular pores; few fine filaments of lime; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk2—29 to 40 inches; pale olive (5Y 6/3) clay, olive (5Y 5/3) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm, sticky and plastic; few fine roots; common very fine irregular pores; few fine

filaments of lime; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk3—40 to 60 inches; pale olive (5Y 6/3) clay, olive (5Y 5/3) moist; weak fine and medium prismatic structure parting to moderate medium subangular blocky; very hard, firm, sticky and plastic; few very fine roots; few very fine irregular pores; few fine filaments of lime; strongly effervescent; moderately alkaline.

The A horizon has hue of 2.5Y or 10YR, value of 5 or 6 dry and 4 or 5 moist, and chroma of 2 or 3 dry or moist.

The Bw horizon has hue of 2.5Y, 5Y, or 10YR, value of 5 or 6 dry and 4 or 5 moist, and chroma of 2 or 3 dry or moist. It is silty clay, silty clay loam, or clay. It is slightly alkaline or moderately alkaline.

The Bk horizon has hue of 2.5Y, 5Y, or 10YR, value of 6 or 7 dry and 4 or 5 moist, and chroma of 2 or 3 dry or moist. It is silty clay loam, silty clay, or clay. It is slightly alkaline or moderately alkaline.

## Sagehill Series

The Sagehill series consists of very deep, well drained soils that formed in lacustrine deposits with a mantle of loess or eolian deposits. These soils are on terraces and terrace escarpments. Slopes are 5 to 60 percent. Elevation is 600 to 1,300 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Sagehill fine sandy loam in an area of Sagehill-Burbank-Malaga complex, 30 to 60 percent slopes, about 3 1/2 miles south of Vantage, Washington; about 3,000 feet south and 1,700 feet west of the northeast corner of sec. 12, T. 16 N., R. 22 E.; USGS Ginkgo topographic quadrangle; latitude 46°53'29" N., longitude 120°00'29" W.

A—0 to 4 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial and tubular pores; neutral; clear wavy boundary.

Bw1—4 to 11 inches; yellowish brown (10YR 5/4) fine sandy loam, dark brown (10YR 3/3) moist; weak medium prismatic structure; soft, very friable, nonsticky and nonplastic; common fine and medium roots; many very fine interstitial pores; neutral; clear wavy boundary.

Bw2—11 to 23 inches; yellowish brown (10YR 5/4) fine sandy loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure; soft, very friable,

nonsticky and nonplastic; common fine and medium roots; many very fine and fine irregular pores; 5 percent pebbles; slightly alkaline; clear wavy boundary.

Bw3—23 to 35 inches; yellowish brown (10YR 5/4) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure; slightly hard, friable, nonsticky and nonplastic; common fine and very fine roots; common very fine and fine irregular pores; 5 percent pebbles; slightly alkaline; abrupt wavy boundary.

2Bk1—35 to 50 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine irregular pores; few fine aggregates of secondary lime; 5 percent pebbles; slightly effervescent; slightly alkaline; abrupt wavy boundary.

2Bk2—50 to 60 inches; light yellowish brown (2.5Y 6/2) fine sandy loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; common fine disseminated lime throughout; 10 percent pebbles; strongly effervescent; strongly alkaline.

Depth to secondary lime is 15 to 38 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry. It is very fine sandy loam, silt loam, or fine sandy loam. It is neutral or slightly alkaline.

The 2Bk horizon has hue of 2.5Y or 10YR, value of 6 or 7 dry and 4 or 5 moist, and chroma of 2 or 3 dry or moist. It is dominantly stratified silt loam, very fine sandy loam, or fine sandy loam. Gravelly fine sandy loam is at a depth of 40 to 60 inches in some pedons. The horizon is slightly alkaline to strongly alkaline.

## Scoon Series

The Scoon series consists of soils that are shallow to a duripan and are well drained. These soils formed in loess. They are on terraces and alluvial fans. Slopes are 5 to 15 percent. Elevation is 800 to 1,800 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Scoon loam in an area of Neppel-Scoon complex, 10 to 15 percent slopes, about 13 miles south of Vantage, Washington; about 1,000 feet east and 3,000 feet north of the

southwest corner of sec. 36, T. 15 N., R. 22 E.; latitude 46°44'51" N., longitude 120°01'02" W.

A—0 to 3 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine roots; few very fine tubular pores; neutral; clear smooth boundary.

Bw—3 to 14 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine, fine, and medium roots; few fine irregular pores; 10 percent pebbles; slightly alkaline; clear smooth boundary.

Bk—14 to 17 inches; light brownish gray (10YR 6/2) gravelly silt loam, brown (10YR 4/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few faint coatings of lime in pores; 20 percent pebbles; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm—17 to 27 inches; indurated, lime- and silica-cemented duripan.

3Bkqm/C—27 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 10 to 20 inches. The duripan is 6 inches to several feet thick, and it is underlain by stratified weakly cemented to indurated layers of gravel.

The A horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist.

The Bw horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 2 to 4 dry or moist. It is silt loam, gravelly silt loam, or gravelly very fine sandy loam. The horizon is slightly alkaline or moderately alkaline.

The Bk horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is gravelly very fine sandy loam or gravelly silt loam.

The 2Bkqm horizon is an indurated silica- and lime-cemented duripan.

The 3Bkqm/C horizon consists of weakly cemented to weakly indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Selah Series

The Selah series consists of soils that are moderately deep to a duripan and are well drained (fig. 9). These soils formed in loess and alluvium. They are on alluvial fans. Slopes are 0 to 30 percent.

Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Selah silt loam, 2 to 5 percent slopes, about 10 miles south of Kittitas, Washington; about 1,500 feet west and 1,900 feet south of the northeast corner of sec. 31, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°50'03" N., longitude 120°21'56" W.

**A**—0 to 3 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak thick platy structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine irregular and tubular pores; neutral; abrupt smooth boundary.

**AB**—3 to 10 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots, many very fine irregular and tubular pores; neutral; clear wavy boundary.

**Bt1**—10 to 14 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to fine medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; few faint clay films lining pores; slightly alkaline; clear wavy boundary.

**Bt2**—14 to 20 inches; yellowish brown (10YR 5/4) silty clay loam, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; common very fine and few medium roots; many very fine tubular pores; common fine rounded manganese crystals; common faint dark yellowish brown (10YR 4/4) pressure faces on peds; few faint clay films lining pores; moderately alkaline; clear wavy boundary.

**Btk**—20 to 27 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; many very fine irregular and tubular pores; common faint clay films lining pores; common fine rounded nonmagnetic shot; 10 percent pebbles; common distinct light gray (10YR 7/2) coatings of lime or carbonate on faces of peds; strongly effervescent; moderately alkaline; abrupt irregular boundary.

**2Bkqm**—27 to 37 inches; indurated, lime- and silica-cemented duripan.

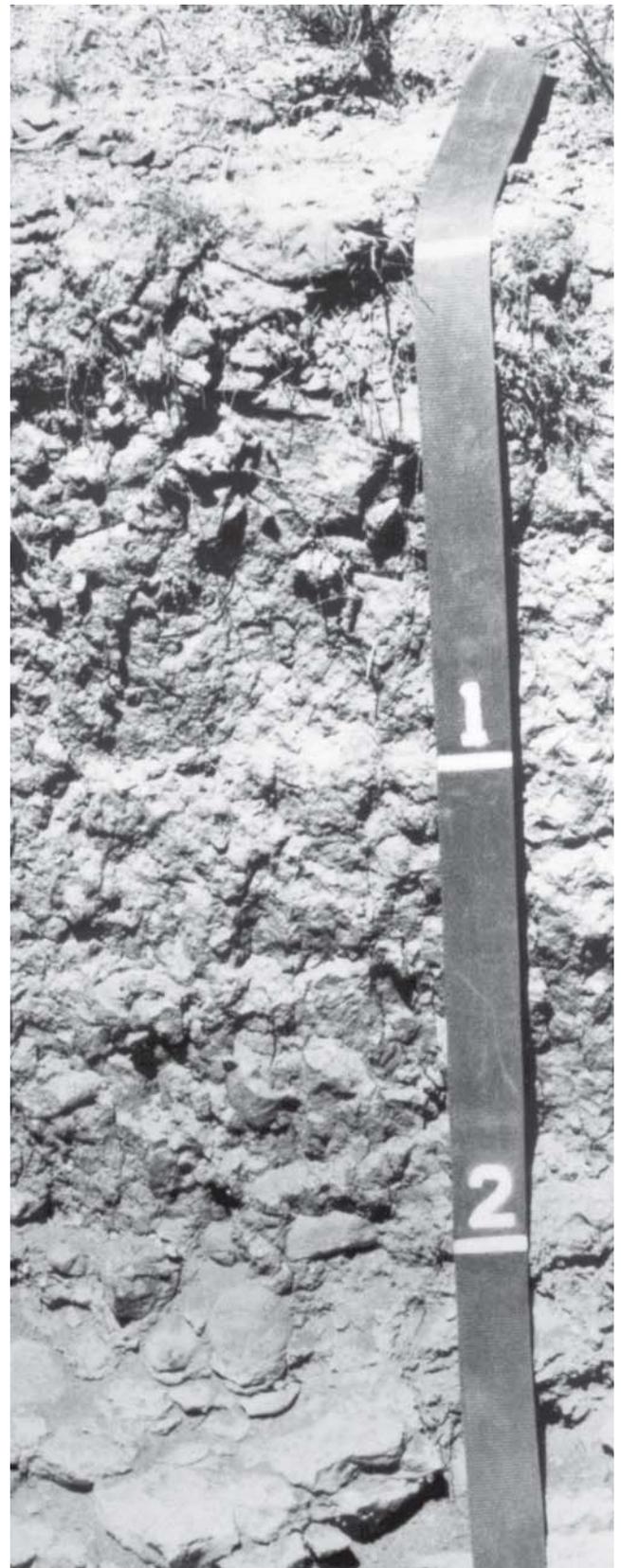


Figure 9.—Typical pedon of Selah silt loam, 0 to 2 percent slopes.

3Bkqm/C—37 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 20 to 40 inches. It is underlain by stratified weakly cemented to weakly indurated alluvial material. The mollic epipedon is 7 to 15 inches thick, and it includes part of the argillic horizon.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is silt loam, clay loam, or silty clay loam. It is slightly alkaline or moderately alkaline.

The Btk horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is clay loam or gravelly clay loam.

The indurated 2Bkqm horizon is 8 to 36 inches thick. It has a gravelly to extremely gravelly matrix and has 1- to 5-inch-thick silica plates.

The 3Bkqm/C horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Semal Series

The Semal series consists of moderately deep, well drained soils that formed in glacial outwash that is mixed with loess in the upper part. These soils are on terraces. Slopes are 3 to 15 percent. Elevation is 500 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 54 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Semal very cobbly sandy loam in an area of Semal complex, 3 to 15 percent slopes, about 8.5 miles south of Vantage, Washington; about 2,250 feet west and 900 feet north of the southeast corner of sec. 33, T. 16 N., R. 23 E.; latitude 46°49'41" N., longitude 119°56'49" W.

A—0 to 5 inches; grayish brown (10YR 5/2) very cobbly sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure parting to weak fine and medium granular; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine irregular pores; 15 percent pebbles and 25 percent cobbles; neutral; abrupt smooth boundary.

Bw—5 to 14 inches; grayish brown (10YR 5/2) very gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; many very fine irregular pores

and few very fine tubular pores; 35 percent pebbles and 15 percent cobbles; neutral; clear smooth boundary.

2Bq—14 to 27 inches; light brownish gray (2.5Y 6/2) extremely gravelly loamy coarse sand, dark grayish brown (10YR 4/2) moist; single grain; loose; common very fine and few medium roots; few faint coatings of silica on pebbles and cobbles; 45 percent pebbles, 20 percent cobbles, and 5 percent stones; slightly alkaline; abrupt wavy boundary.

3Bkqm1—27 to 40 inches; light brownish gray (2.5Y 6/2) extremely cobbly loamy coarse sand, dark grayish brown (10YR 4/2) moist; massive; strongly cemented; few coarse roots; 30 percent pebbles, 35 percent cobbles, and 10 percent stones; slightly effervescent; moderately alkaline; clear wavy boundary.

3Bkqm2—40 to 55 inches; light brownish gray (2.5Y 6/2) extremely gravelly loamy coarse sand, dark grayish brown (10YR 4/2) moist; massive; strongly cemented; 40 percent pebbles, 30 percent cobbles, and 10 percent stones; slightly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.

3Bkq—55 to 60 inches; light brownish gray (2.5Y 6/2) extremely cobbly loamy coarse sand, dark grayish brown (10YR 4/2) moist; single grain; loose; common distinct coatings of silica on pebbles and cobbles; 40 percent pebbles, 30 percent cobbles, and 10 percent stones; slightly effervescent; moderately alkaline.

Depth to the strongly cemented duripan is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry. It is cobbly sandy loam, very cobbly sandy loam, or stony sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is very gravelly sandy loam, gravelly fine sandy loam, or very gravelly fine sandy loam. It is neutral or slightly alkaline.

The 2Bq horizon has hue of 2.5Y or 10YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist. It is extremely gravelly loamy coarse sand, very gravelly loamy sand, or extremely gravelly loamy sand. It is weakly cemented in some pedons. The horizon is neutral or slightly alkaline.

The 3Bkqm horizon and the 3Bkq horizon, where present, have hue of 2.5Y or 10YR, value of 5 or 6 dry and 4 or 5 moist, and chroma of 2 or 3 dry or moist. The 3Bkqm horizon is extremely gravelly loamy coarse sand or extremely cobbly loamy coarse sand. The

3Bkq horizon is extremely gravelly loamy coarse sand, extremely cobbly coarse sand, extremely gravelly coarse sand, or extremely cobbly loamy coarse sand. The horizons are slightly alkaline or moderately alkaline.

## Sohappy Series

The Sohappy series consists of deep, well drained soils that formed in loess over colluvium and alluvium. These soils are on hillslopes. Slopes are 3 to 60 percent. Elevation is 500 to 2,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Sohappy silt loam in an area of Drino-Sohappy-Fortyday complex, 45 to 60 percent slopes, about 15 miles south of Vantage, Washington; about 2,300 feet west and 250 feet north of the southeast corner of sec. 1, T. 14 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°43'29" N., longitude 120°01'34" W.

- A—0 to 4 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; few fine irregular pores; neutral; clear smooth boundary.
- Bw1—4 to 9 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular pores and few fine and medium irregular pores; 5 percent pebbles; slightly alkaline; clear wavy boundary.
- Bw2—9 to 17 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak fine prismatic structure; soft, loose, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores and few fine and medium irregular pores; 10 percent pebbles; slightly alkaline; clear wavy boundary.
- 2Bk1—17 to 25 inches; light yellowish brown (10YR 6/4) gravelly silt loam, brown (10YR 4/3) moist; weak medium prismatic structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine and few fine and medium tubular pores and few fine and medium irregular pores; 10 percent pebbles and 5 percent cobbles; slightly effervescent; moderately alkaline; clear wavy boundary.
- 2Bk2—25 to 41 inches; light brownish gray (10YR 6/2) cobbly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and

nonplastic; many very fine roots; common fine seams of soft lime; 10 percent pebbles and 10 percent cobbles; violently effervescent; strongly alkaline; clear wavy boundary.

2Bk3—41 to 47 inches; light brownish gray (10YR 6/2) extremely cobbly clay loam, dark yellowish brown (10YR 4/4) moist; massive; loose, slightly sticky and nonplastic; few very fine roots; few coatings of lime throughout; 30 percent pebbles and 45 percent cobbles; strongly effervescent; moderately alkaline; abrupt irregular boundary.

3R—47 inches; fractured basalt; coatings of silica cover 25 percent of total surface area.

The discontinuity, or 2Bk horizon, is at a depth of 25 to 38 inches. Depth to secondary lime is 24 to 44 inches. Depth to basalt is 40 to 60 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is silt loam or loam. It is slightly alkaline or moderately alkaline.

The 2Bk horizon has value of 6 or 7 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. The upper part is cobbly silt loam, gravelly silt loam, or cobbly loam, and the lower part is extremely cobbly loam or very cobbly loam. It is moderately alkaline or strongly alkaline.

## Starbuck Series

The Starbuck series consists of shallow, well drained soils that formed in loess and alluvium. These soils are on benches. Slopes are 3 to 15 percent. Elevation is 500 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Starbuck fine sandy loam in an area of Starbuck-Rock outcrop complex, 3 to 15 percent slopes, about 12 miles south of Vantage, Washington; about 2,200 feet east and 1,800 feet south of the northwest corner of sec. 29, T. 15 N., R. 23 E.; USGS Beverly topographic quadrangle; latitude 46°45'45" N., longitude 119°58'19" W.

- A—0 to 3 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common fine and very fine tubular pores; 5 percent cobbles and 5 percent pebbles; slightly alkaline; clear smooth boundary.
- Bw1—3 to 10 inches; pale brown (10YR 6/3) fine

sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure parting to moderate fine granular; slightly hard, friable, nonsticky and nonplastic; few fine and very fine roots; few very fine tubular pores; 5 percent pebbles; slightly alkaline; clear smooth boundary.

Bw2—10 to 16 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, nonsticky and nonplastic; common fine and very fine roots; few very fine tubular pores; 10 percent pebbles; slightly alkaline; abrupt irregular boundary.

2R—16 inches; basalt.

Depth to basalt is 12 to 20 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist.

The Bw horizon has value of 5 or 6 dry and chroma of 3 or 4 dry or moist. It is silt loam, fine sandy loam, or gravelly silt loam. It is neutral or slightly alkaline.

## Tanksel Series

The Tanksel series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt, slope alluvium, and loess mixed with volcanic ash in the upper part. These soils are on hillslopes. Slopes are 15 to 65 percent. Elevation is 2,500 to 3,300 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 48 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Tanksel loam in an area of Tanksel-Wockum complex, 30 to 45 percent slopes, about 9 miles northeast of Moxee City, Washington; about 1,940 feet east and 980 feet south of the northwest corner of sec. 22, T. 14 N., R. 21 E.; USGS Black Rock Spring NW topographic quadrangle; latitude 46°41'28" N., longitude 120°10'57" W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky and granular structure; soft, friable, slightly sticky and nonplastic; many very fine and few fine roots; 5 percent cobbles; neutral; clear wavy boundary.

AB—4 to 12 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium and fine subangular blocky structure; soft, friable, slightly sticky and slightly

plastic; many very fine and fine roots; many very fine and fine irregular pores; 20 percent pebbles; neutral; abrupt wavy boundary.

2Bt1—12 to 17 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; common very fine and fine roots; many very fine and fine tubular pores; few faint clay films on faces of peds; 30 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

2Bt2—17 to 22 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; few very fine and fine roots; many very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few faint clay films on faces of peds; many very fine and fine tubular pores; 35 percent pebbles and 10 percent cobbles; slightly alkaline; clear irregular boundary.

2Bt3—22 to 30 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; hard, firm, sticky and plastic; few very fine and fine roots; many very fine and fine tubular pores; common distinct (10YR 4/3) clay films on faces of peds; 45 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

2Bt4—30 to 34 inches; brown (7.5YR 5/4) extremely gravelly clay, brown (7.5YR 4/4) moist; strong fine angular blocky structure; hard, firm, very sticky and very plastic; few fine and very fine roots; many very fine tubular pores; common distinct (10YR 4/3) clay films on faces of peds; 60 percent pebbles and 10 percent cobbles; slightly alkaline; abrupt irregular boundary.

3R—34 inches; basalt.

Depth to basalt is 20 to 40 inches. The mollic epipedon is 20 to 29 inches thick, and it includes part or all of the argillic horizon. The profile is neutral or slightly alkaline throughout.

The A horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is loam or stony silt loam.

The AB horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is gravelly loam, loam, or silt loam.

The 2Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6 dry and 2 to 4 moist, and chroma 3 or 4 dry or moist. The upper part is very cobbly clay loam or

very gravelly clay loam, and the lower part is extremely gravelly clay, extremely cobbly clay loam, or very gravelly clay loam.

### Terlan Series

The Terlan series consists of soils that are shallow to a duripan and are well drained. These soils formed in loess and alluvium. They are on alluvial fans. Slopes are 2 to 15 percent. Elevation is 1,800 to 2,500 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Terlan gravelly loam, 5 to 10 percent slopes, about 9 miles southeast of Kittitas, Washington; about 400 feet north and 200 feet east of the southwest corner of sec. 11, T. 16 N., R. 20 E.; USGS Black Rock Spring topographic quadrangle; latitude 46°39'57" N., longitude 120°03'13" W.

A—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine and fine interstitial pores and few medium irregular pores; 20 percent pebbles; slightly alkaline; clear wavy boundary.

AB—4 to 10 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to weak fine and medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine interstitial pores; 5 percent pebbles; slightly alkaline; abrupt wavy boundary.

Btk1—10 to 15 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate coarse prismatic structure parting to moderate medium prismatic; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine interstitial pores and few medium irregular pores; few prominent clay films lining pores and on faces of peds; 20 percent pebbles and 10 percent cobbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.

Btk2—15 to 18 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to fine and medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common

very fine and few fine roots; common very fine and fine interstitial pores and few medium irregular pores; few prominent clay films lining pores and on faces of peds; 15 percent pebbles and 10 percent cobbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.

3Bkqm—18 to 28 inches; indurated, lime- and silica-cemented, gravelly duripan; violently effervescent.

4Bkqm/C—28 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 10 to 20 inches. It is underlain by stratified weakly cemented to indurated alluvial material. The mollic epipedon 7 to 12 inches thick.

The A and AB horizons have value of 4 or 5 dry and chroma of 2 or 3 moist. They are loam or gravelly loam.

The Bt horizon, where present, and the Btk horizon have value of 5 or 6 dry and 3 or 4 moist, and they have chroma of 3 or 4 dry or moist. They are clay loam, gravelly loam, or gravelly clay loam. They are neutral to moderately alkaline.

The Bkq and Bk horizons, where present, have value of 6 or 7 dry or moist and chroma of 1 to 3 dry or moist. They are gravelly loam, gravelly clay loam, or very gravelly loam.

The indurated 3Bkqm horizon is 8 to 36 inches thick. It has a gravelly to extremely gravelly matrix and has 1- to 5-inch-thick silica plates.

The 4Bkqm/C horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

### Timmerman Series

The Timmerman series consists of very deep, somewhat excessively drained soils that formed in glacial outwash and alluvium mixed with loess in the upper part. These soils are on outwash plains and terraces. Slopes are 2 to 5 percent. Elevation is 600 to 1,300 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Timmerman sandy loam in an area of Timmerman complex, 2 to 5 percent slopes, about 7 miles south of Vantage, Washington; about 1,100 feet east and 2,000 feet south of the northwest corner of sec. 29, T. 16 N., R. 23 E.; USGS Beverly topographic quadrangle; latitude 46°50'58" N., longitude 120°58'32" W.

A—0 to 3 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; few fine interstitial and tubular pores; neutral; clear wavy boundary.

Bw1—3 to 8 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak medium prismatic structure; soft, very friable, slightly sticky and slightly plastic; common fine roots; many fine and medium interstitial and tubular pores; slightly alkaline; clear wavy boundary.

Bw2—8 to 16 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to weak medium and coarse subangular blocky; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; many fine and medium irregular pores; slightly alkaline; abrupt wavy boundary.

Bk1—16 to 35 inches; dark gray (10YR 4/1) loamy coarse sand, black (10YR 2/1) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots and few medium roots; few weakly cemented to moderately cemented  $\frac{1}{2}$ - to 1-inch-thick lenses of lime and silica; 5 percent pebbles; slightly effervescent; moderately alkaline; clear wavy boundary.

Bk2—35 to 60 inches; dark gray (10YR 4/1) loamy coarse sand, black (10YR 2/1) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common weakly cemented to moderately cemented  $\frac{1}{2}$ - to 1-inch-thick lenses of lime and silica; 5 percent pebbles and 5 percent cobbles; slightly effervescent; discontinuous; slightly alkaline.

Depth to the underlying coarse textured Bk horizon and secondary lime are 13 to 30 inches.

The A horizon and the Ap horizon, where present, have value of 5 to 7 dry and 3 to 5 moist, and they have chroma of 1 to 3 dry or moist. They are loamy sand or sandy loam.

The Bw horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 1 to 3 dry or moist. It is coarse sandy loam, sandy loam, or fine sandy loam. It is neutral or slightly alkaline.

The Bk horizon has value of 3 to 7 dry and 2 to 5 moist, and it has chroma of 1 to 3 dry or moist. It is coarse sand, loamy coarse sand, or gravelly coarse sand. The horizon is slightly alkaline to strongly alkaline.

## Torrifluvents

Torrifluvents consists of very deep, somewhat excessively drained soils that formed in alluvium. These soils are on flood plains. Slopes are 0 to 5 percent. Elevation is 480 to 490 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 135 to 195 days.

Representative pedon of Torrifluvents very cobbly very fine sandy loam in an area of Torrifluvents complex, nearly level, in Kittitas County, Washington; about 20 feet south and 2,100 feet east of the northwest corner of sec. 10, T. 15 N., R. 23 E.; latitude 46°48'40" N., longitude 119°55'47" W.

A—0 to 2 inches; gray (10YR 5/1) very cobbly very fine sandy loam, dark gray (10YR 4/1) moist; single grain; loose; common fine and very fine roots; 20 percent pebbles and 25 percent cobbles; slightly alkaline; gradual wavy boundary.

AC—2 to 6 inches; gray (10YR 5/1) extremely cobbly sand, dark gray (10YR 4/1) moist; single grain; loose; common fine and very fine roots; 30 percent pebbles and 40 percent cobbles; slightly alkaline; gradual wavy boundary.

C1—6 to 35 inches; brown (10YR 5/3) extremely cobbly sand, dark brown (10YR 3/3) moist; single grain; loose; few fine and very fine roots; 35 percent pebbles and 45 percent cobbles; slightly alkaline; gradual wavy boundary.

C2—35 to 60 inches; olive brown (2.5Y 4/3) extremely cobbly sand, dark olive brown (2.5Y 3/3) moist; single grain; loose; few very fine roots; 35 percent pebbles and 45 percent cobbles; slightly alkaline.

The A horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 1 to 3 dry or moist. It is very cobbly very fine sandy loam or gravelly very fine sandy loam. It is slightly alkaline or moderately alkaline.

The AC horizon has value of 4 to 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is extremely cobbly sand, gravelly sandy loam, or extremely gravelly loamy sand. It is slightly alkaline or moderately alkaline.

The C horizon has hue of 10YR or 2.5Y, value of 4 or 5 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist. It is extremely cobbly sand, extremely gravelly sand, or extremely gravelly loamy sand. It is slightly alkaline or moderately alkaline.

## Tronsen Series

The Tronsen series consists of very deep, well drained soils that formed in residuum and colluvium derived from basalt and in loess mixed with volcanic ash in the upper part. These soils are on hillslopes. Slopes are 3 to 60 percent. Elevation is 2,500 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 48 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Tronsen stony loam in an area of Whiskeydick-Tronsen-Camaspatch complex, 30 to 45 percent slopes, about 10 miles southwest of Vantage, Washington; about 250 feet west and 1,900 feet south of the northeast corner of sec. 28, T. 16 N., R. 21 E.; USGS McDonald Spring topographic quadrangle; latitude 46°50'50" N., longitude 120°11'32" N.

A—0 to 7 inches; dark grayish brown (10YR 4/2) stony loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to weak fine subangular blocky; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many fine irregular pores; 15 percent pebbles, 10 percent cobbles, and 2 percent stones; neutral; abrupt smooth boundary.

BAt—7 to 11 inches; brown (10YR 4/3) very gravelly clay, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; very hard, firm, very sticky and very plastic; many very fine roots; many very fine interstitial pores; common distinct clay films on faces of peds; 30 percent pebbles and 5 percent cobbles; neutral; abrupt smooth boundary.

Bt1—11 to 18 inches; brown (10YR 4/3) very gravelly clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate coarse subangular blocky; very hard, firm, very sticky and very plastic; common very fine roots; many very fine interstitial pores; common distinct dark reddish brown (5YR 3/3) clay films on faces of peds; 30 percent pebbles and 5 percent cobbles; neutral; clear wavy boundary.

Bt2—18 to 25 inches; yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; common prominent dark reddish brown (5YR 3/3) clay films on faces of peds; 35 percent pebbles and 5 percent cobbles; neutral; clear wavy boundary.

Bt3—25 to 28 inches; light yellowish brown (10YR 6/4) extremely gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine roots; common very fine tubular pores; common prominent clay films on faces of peds; 70 percent pebbles and 5 percent cobbles; slightly alkaline; clear wavy boundary.

Bt4—28 to 50 inches; light yellowish brown (10YR 6/4) extremely gravelly clay loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; slightly hard, firm, sticky and plastic; few fine and very fine roots; common very fine tubular pores; common prominent clay films on faces of peds; 85 percent pebbles; slightly alkaline; gradual wavy boundary.

Bt5—50 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; few fine and very fine roots; common very fine tubular pores; few prominent clay films on faces of peds; 55 percent pebbles and 10 percent cobbles; slightly alkaline.

The mollic epipedon is less than 20 inches thick, and it includes part of the argillic horizon.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The BAt horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is very gravelly clay loam, very cobbly clay loam, or very gravelly clay.

The Bt horizon has value of 4 to 6 dry and 3 to 5 moist, and it has chroma of 3 or 4 dry or moist. The upper part is very gravelly clay loam, very cobbly clay loam, or very gravelly clay, and the lower part is very cobbly clay loam, very cobbly clay, or extremely gravelly clay loam. The horizon is neutral or slightly alkaline.

## Vantage Series

The Vantage series consists of shallow, well drained soils that formed in residuum and colluvium derived from basalt and in loess. These soils are on ridgetops, benches, and hillslopes. Slopes are 3 to 45 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Vantage very cobbly loam, 3 to 15 percent slopes, about 8 miles southeast of Kittitas, Washington; about 600 feet south and 700 feet east of

the northwest corner of sec. 19, T. 16 N., R. 21 E.; USGS Badger Gap topographic quadrangle; latitude 46°52'55" N., longitude 120°15'04" W.

A—0 to 3 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure and weak thick platy; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine irregular pores; 20 percent pebbles and 20 percent cobbles; neutral; clear wavy boundary.

BAt—3 to 8 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; common very fine tubular pores; common distinct clay films on faces of peds; 25 percent pebbles and 25 percent cobbles; neutral; abrupt smooth boundary.

Btq—8 to 17 inches; yellowish brown (10YR 5/4) extremely gravelly clay, dark yellowish brown (10YR 4/4) moist; strong fine and medium angular blocky structure; very hard, very firm, very sticky and very plastic; common very fine roots; few very fine tubular pores; many prominent clay films on faces of peds and lining pores; common distinct coatings of silica on underside of 20 percent of rock fragments; 50 percent pebbles and 20 percent cobbles; neutral; clear wavy boundary.

2R—17 inches; fractured basalt.

Depth to basalt is 12 to 20 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is extremely gravelly loam, very cobbly loam, or very stony loam.

The BAt horizon has value of 4 or 5 dry. It is very cobbly clay loam, very gravelly loam, or very gravelly clay loam.

The Btq horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 3 or 4 dry or moist. It is extremely cobbly clay, very cobbly clay, or extremely gravelly clay.

## Wanapum Series

The Wanapum series consists of soils that are shallow to a duripan and are well drained. These soils formed in loess and alluvium. They are on alluvial fans. Slopes are 2 to 15 percent. Elevation is 1,000 to 1,800 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Wanapum loam in an area of Wanapum complex, 5 to 10 percent slopes, about 3 miles northeast of Moxee City, Washington; about 2,400 feet west and 1,300 feet south of the northeast corner of sec. 28, T. 13 N., R. 20 E.; USGS Elephant Mountain topographic quadrangle; latitude 46°35'16" N., longitude 120°19'41" W.

A—0 to 3 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak thick platy structure parting to weak fine and medium granular; soft, friable, slightly sticky and slightly plastic; many very fine roots; few very fine and fine vesicular pores; 5 percent pebbles; neutral; clear smooth boundary.

AB—3 to 6 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and few coarse roots; common very fine tubular pores and few fine vesicular pores; 5 percent pebbles and 5 percent cobbles; neutral; clear smooth boundary.

Bt1—6 to 10 inches; light yellowish brown (10YR 6/4) very gravelly loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and few coarse roots; few very fine tubular pores and many fine vesicular pores; few faint clay films lining pores; 30 percent pebbles and 10 percent cobbles; neutral; clear smooth boundary.

Bt2—10 to 13 inches; light yellowish brown (10YR 6/4) very gravelly loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores and many fine vesicular pores; few distinct clay films lining pores; 35 percent pebbles and 10 percent cobbles; slightly alkaline; abrupt smooth boundary.

2Bkqm—13 to 23 inches; indurated, lime- and silica-cemented duripan; gradual smooth boundary.

3Bkqm/C—23 to 60 inches; stratified indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 11 to 19 inches. It is underlain by stratified weakly cemented to indurated alluvial material.

The A and AB horizons have value of 4 to 6 dry and 2 or 3 moist, and they have chroma of 2 or 3 dry or moist. They are loam or cobbly loam. The horizons are neutral or slightly alkaline.

The Bt horizon has value of 4 to 6 dry and 3 or 4

moist, and it has chroma of 3 or 4 dry or moist. It is very gravelly loam, very gravelly clay loam, or very cobbly clay loam. It is neutral to moderately alkaline.

The indurated 2Bkqm horizon is 8 to 36 inches thick. It has a gravelly to extremely gravelly matrix and has 1- to 5-inch-thick silica plates.

The 3Bkqm/C horizon consists of weakly cemented to indurated layers that are of varying thickness and are separated by continuous and discontinuous layers of alluvium.

## Weirman Series

The Weirman series consists of very deep, somewhat excessively drained soils that formed in alluvium. These soils are on terraces and flood plains. Slopes are 0 to 5 percent. Elevation is 500 to 2,500 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 48 to 53 degrees F, and the frost-free season is 130 to 195 days.

Typical pedon of Weirman fine sandy loam in an area of Esquatzel-Weirman complex, channeled, 0 to 2 percent slopes, about 10 miles southeast of Kittitas, Washington; about 1,500 feet east and 1,850 south of the northwest corner of sec. 36, T. 16 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°49'59" N., longitude 120°16'08" W.

- A1—0 to 3 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; many very fine roots; neutral; abrupt smooth boundary.
- A2—3 to 15 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; common fine and few medium roots; few fine and very fine tubular pores; stratified 1/4-inch-thick lenses of sand throughout; neutral; abrupt smooth boundary.
- A3—15 to 18 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and few medium roots; few fine and very fine tubular pores; 5 percent pebbles; neutral; clear wavy boundary.
- AC—18 to 27 inches; brown (10YR 5/3) gravelly loamy sand, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and few medium roots; few fine and very fine tubular pores; 30 percent pebbles; neutral; clear wavy boundary.
- 2C1—27 to 38 inches; brown (10YR 5/3) very gravelly

loamy sand, dark brown (10YR 3/3) moist; single grain; loose; few fine roots; lenses of extremely gravelly sand; 45 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

2C2—38 to 60 inches; brown (10YR 5/3) extremely gravelly sand, dark brown (10YR 3/3) moist; single grain; loose; few fine roots; 70 percent pebbles and 10 percent cobbles; neutral.

The particle-size control section is 35 to 80 percent rock fragments by volume. Depth to the underlying loamy sand material is 10 to 20 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is fine sandy loam or very cobbly sandy loam.

The AC horizon has value 4 to 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is gravelly loamy sand, loamy sand, or very gravelly loamy sand.

The 2C horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is very gravelly loamy sand, extremely gravelly loamy sand, or extremely gravelly sand.

## Whiskeydick Series

The Whiskeydick series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt and in loess. These soils are on ridgetops, hillslopes, and benches. Slopes are 3 to 60 percent. Elevation is 2,500 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 49 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Whiskeydick very cobbly loam in an area of Whiskeydick-Tronsen-Camaspatch complex, 30 to 45 percent slopes, about 9 miles northeast of Moxee City, Washington; about 1,300 feet north and 500 feet west of the southeast corner of sec. 26, T. 14 N., R. 21 E.; USGS Black Rock Spring NW topographic quadrangle; latitude 46°40'04" W., longitude 120°09'03" N.

- A—0 to 4 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots and few coarse roots; many very fine tubular pores; 20 percent pebbles and 25 percent cobbles; neutral; clear smooth boundary.
- Bt1—4 to 10 inches; brown (10YR 4/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure parting to moderate fine granular; hard, friable,

slightly sticky and slightly plastic; common very fine and fine roots and few coarse roots; common very fine tubular pores; few faint clay films lining pores; 10 percent pebbles and 25 percent cobbles; neutral; clear smooth boundary.

Bt2—10 to 21 inches; brown (10YR 4/3) very cobbly clay, brown (10YR 4/3) moist; strong medium subangular blocky structure; very hard, firm, very sticky and very plastic; common very fine and fine roots and few coarse roots; common very fine tubular pores; many distinct clay films on faces of peds; 20 percent pebbles and 25 percent cobbles; neutral; clear smooth boundary.

Bt3—21 to 30 inches; dark yellowish brown (10YR 4/4) extremely cobbly clay, dark brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine vesicular pores; many distinct clay films on faces of peds; 25 percent pebbles and 40 percent cobbles; slightly alkaline; abrupt irregular boundary.

2R—30 inches; fractured basalt; coatings of silica in fractures.

Depth to basalt is 20 to 40 inches. The mollic epipedon is 12 to 19 inches thick, and it includes part of the argillic horizon.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The Bt1 horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is very cobbly clay loam, very cobbly clay, or very gravelly clay loam.

The Bt2 and Bt3 horizons have value of 4 or 5 dry and 3 or 4 moist, and they have chroma of 3 or 4 dry or moist. They are extremely gravelly clay, very gravelly clay, very cobbly clay, or extremely cobbly clay. They are neutral or slightly alkaline.

## Willis Series

The Willis series consists of moderately deep, well drained soils that formed in loess. These soils are on uplands. Slopes are 2 to 15 percent. Elevation is 1,200 to 2,500 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 125 to 160 days.

Typical pedon of Willis silt loam, 8 to 15 percent slopes, about 9 miles south of Sunnyside; about 1,500 feet north and 200 feet east of southwest corner of sec. 1, T. 11 N., R. 22 E.; USGS Sunnyside topographic quadrangle; latitude 46°12'14" N., longitude 120°0'38" W.

A1—0 to 3 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine roots; slightly alkaline; abrupt wavy boundary.

A2—3 to 6 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; weak fine angular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common fine roots; few fine tubular pores; slightly alkaline; clear wavy boundary.

Bw—6 to 22 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common fine roots; common fine tubular pores; slightly alkaline; abrupt wavy boundary.

Bk1—22 to 26 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and slightly plastic; common fine roots; few fine tubular pores; slightly effervescent; moderately alkaline; abrupt wavy boundary.

Bk2—26 to 34 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; hard, firm, slightly sticky and plastic; few very fine roots; many fine tubular pores; filaments of lime; violently effervescent; moderately alkaline; abrupt wavy boundary.

Bkqm—34 to 38 inches; duripan.

R—38 inches; basalt.

Depth to the duripan is 20 to 40 inches. Depth to basalt is 30 inches or more. The mollic epipedon is 12 to 15 inches thick.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 to 4 dry or moist. It is moderately alkaline or strongly alkaline.

## Winchester Series

The Winchester series consists of very deep, excessively drained soils that formed in sandy alluvial material and eolian sand or in glacial outwash. These soils are on terraces, dunes, and terrace escarpments. Slopes are 5 to 30 percent. Elevation is 600 to 1,300 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 49 to 51

degrees F, and the frost-free season is 135 to 195 days.

Typical pedon of Winchester sand in an area of Winchester-Sagehill-Burbank complex, 5 to 30 percent slopes, about 5 miles south of Vantage, Washington; about 650 feet east and 1,800 feet south of the northwest corner of sec. 13, T. 16 N., R. 22 E.; USGS Ginkgo topographic quadrangle; latitude 46°52'41" N., longitude 120°01'12" W.

A—0 to 6 inches; grayish brown (10YR 5/2) sand, dark brown (10YR 3/3) moist; single grain; loose; few fine roots; neutral; diffuse smooth boundary.

C1—6 to 17 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; single grain; loose; few fine roots; slightly alkaline; gradual wavy boundary.

C2—17 to 60 inches; grayish brown (10YR 5/2) sand, dark brown (10YR 3/3) moist; single grain; loose; few fine roots; slightly alkaline.

The upper 20 to 30 inches of the profile does not have secondary lime.

The A horizon is less than 1 percent organic matter. It has hue of 10YR or 2.5Y, value of 4 or 5 dry and 3 or 4 moist, and chroma of 1 to 4 dry or moist. It is neutral or slightly alkaline.

The C horizon has hue 10YR or 2.5Y, value of 4 or 5 dry and 2 or 3 moist, and chroma of 1 to 3 dry or moist. It is sand, coarse sand, or loamy sand. The lower part of the particle-size control section is multicolored in some pedons. The C horizon is neutral to moderately alkaline.

## Windry Series

The Windry series consists of shallow, well drained soils that formed in colluvium derived from basalt and in loess. These soils are on hillslopes, ridgetops, and benches. Slopes are 3 to 60 percent. Elevation is 2,500 to 4,200 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 47 to 49 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Windry very cobbly loam in an area of Wockum-Blint-Windry complex, 45 to 60 percent slopes, about 9 miles northeast of Moxee City, Washington; 2,350 feet south and 2,500 feet west of the northeast corner of sec. 30, T. 14 N., R. 22 E.; USGS Black Rock Spring NE topographic quadrangle; latitude 46°40'21" N., longitude 120°06'55" W.

A—0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure;

soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine irregular pores; 20 percent pebbles and 30 percent cobbles; neutral; clear wavy boundary.

AB—3 to 7 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots and few fine and medium roots; common very fine irregular pores; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; 45 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

Bt—7 to 15 inches; brown (10YR 5/3) extremely cobbly clay loam, dark brown (10YR 3/3) moist; weak medium and fine subangular blocky structure; slightly hard, very firm, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; common very fine irregular pores; common distinct clay films on faces of peds; 30 percent pebbles and 40 percent cobbles; slightly alkaline; clear wavy boundary.

2R—15 inches; basalt.

Depth to basalt is 14 to 20 inches. The mollic epipedon is 14 to 20 inches thick, and it includes all or part of the argillic horizon. The profile is neutral or slightly alkaline throughout.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is very gravelly clay loam, very gravelly loam, or very cobbly loam.

The Bt horizon has value of 4 to 6 dry or moist and chroma of 2 or 3 dry or moist. It is extremely gravelly clay loam, extremely cobbly clay loam, or very cobbly loam.

## Wipple Series

The Wipple series consists of very deep, well drained soils that formed in basalt colluvium and loess. These soils are on footslopes and hillslopes. Slopes are 3 to 45 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Wipple cobbly clay loam, 3 to 15 percent slopes, about 9 miles southeast of Kittitas, Washington; about 1,000 feet north and 3,400 feet west of the southeast corner of sec. 19, T. 16 N., R. 21 E.; USGS McDonald Spring topographic

quadrangle; latitude 46°51'20" N., longitude 120°14'48" W.

- A—0 to 3 inches; brown (10YR 5/3) cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak medium and thick platy structure parting to weak coarse granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; 10 percent pebbles and 20 percent cobbles; neutral; clear wavy boundary.
- A2—3 to 6 inches; brown (10YR 5/3) cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few coarse roots; many very fine tubular pores; 5 percent pebbles and 20 percent cobbles; neutral; clear wavy boundary.
- Bt1—6 to 11 inches; brown (10YR 5/3) very gravelly clay, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; few very fine tubular pores; many prominent clay films on faces of peds; 35 percent pebbles and 10 percent cobbles; neutral; abrupt smooth boundary.
- Bt2—11 to 15 inches; dark yellowish brown (10YR 4/4) very gravelly clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure; very hard, very firm, sticky and very plastic; common very fine and fine roots; few very fine irregular pores; many prominent clay films on faces of peds; 30 percent pebbles and 10 percent cobbles; slightly alkaline; clear wavy boundary.
- Bt3—15 to 20 inches; dark yellowish brown (10YR 4/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to strong medium subangular blocky; very hard, very firm, very sticky and very plastic; common very fine and few fine roots; few very fine tubular pores; many prominent clay films on faces of peds; 35 percent pebbles and 5 percent cobbles; slightly alkaline; clear wavy boundary.
- Btk1—20 to 26 inches; brown (7.5YR 5/4) very gravelly clay, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; common prominent clay films on faces of peds; lime segregated in common fine irregular filaments; 30 percent pebbles and 5 percent cobbles; moderately alkaline; clear wavy boundary.
- Btk2—26 to 39 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown

(10YR 4/4) moist; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and few medium roots; many very fine tubular pores; common faint clay films on faces of peds; lime segregated in common fine irregular filaments; 35 percent pebbles and 10 percent cobbles; slightly effervescent; moderately alkaline; clear wavy boundary.

- Btk3—39 to 60 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; common prominent clay films on faces of peds; disseminated lime and coatings of lime on rock fragments; 30 percent pebbles and 20 percent cobbles; slightly effervescent; moderately alkaline.

Depth to free lime is 18 to 40 inches. The mollic epipedon is 10 to 15 inches thick, and it may include part of the argillic horizon.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 3 or 4 dry or moist. It is very gravelly clay, very cobbly clay, or extremely cobbly clay. It is neutral or slightly alkaline.

The Btk horizon has hue of 10YR or 7.5YR, value of 5 or 6 dry and 3 or 4 moist, and chroma of 3 or 4 dry or moist. It is very gravelly clay loam, very cobbly clay loam, extremely cobbly clay loam, very gravelly clay, very cobbly clay, or extremely cobbly clay. It is slightly alkaline or moderately alkaline.

## Wockum Series

The Wockum series consists of very deep, well drained soils that formed in loess mixed with volcanic ash in the upper part and in colluvium derived from basalt. These soils are on north-facing hillslopes. Slopes are 15 to 65 percent. Elevation is 2,500 to 3,300 feet. The average annual precipitation is 12 to 15 inches, the average annual air temperature is 46 to 49 degrees F, and the frost-free season is 120 to 135 days.

Typical pedon of Wockum silt loam in an area of Tankel-Wockum complex, 30 to 45 percent slopes, about 9 miles northeast of Moxee City, Washington; about 1,860 feet east and 1,010 feet south of the northwest corner of sec. 22, T. 14 N., R. 21 E.; USGS Black Rock Spring NW topographic quadrangle; latitude 46°41'26" N., longitude 120°11'02" W.

- A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; weak fine subangular blocky structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; many very fine and few fine roots; common fine irregular pores; neutral; clear smooth boundary.
- AB—4 to 12 inches; dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common fine irregular pores; neutral; clear wavy boundary.
- Bt1—12 to 17 inches; dark brown (7.5YR 4/4) silt loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and medium roots; common very fine and fine tubular pores; common distinct dark brown (7.5YR 3/2) clay films on faces of peds; neutral; clear wavy boundary.
- Bt2—17 to 27 inches; brown (7.5YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to strong medium subangular blocky; hard, friable, slightly sticky and plastic; common very fine and few medium roots; common very fine and fine tubular pores; common distinct dark brown (10YR 3/4) clay films on faces of peds; 5 percent pebbles; neutral; clear wavy boundary.
- Bt3—27 to 40 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; hard, friable, slightly sticky and plastic; few very fine roots; common very fine and fine tubular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 10 percent pebbles; neutral; clear wavy boundary.
- Bt4—40 to 60 inches; light brown (7.5YR 6/4) gravelly clay loam, brown (7.5YR 4/4) moist; moderate coarse subangular blocky structure; hard, firm, slightly sticky and plastic; few very fine roots; common very fine and fine tubular pores; common distinct yellowish brown (10YR 3/4) clay films on faces of peds; 20 percent pebbles; neutral.

The mollic epipedon is 20 to 30 inches thick, and it includes part of the argillic horizon.

The A horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 1 or 2 dry or moist.

The Bt horizon has hue of 10YR or 7.5YR, value of

4 to 6 dry and 2 to 4 moist, and chroma of 3 or 4 dry or moist. The upper part is silt loam or silty clay loam, and the lower part is gravelly clay loam, very gravelly loam, or cobbly silty clay loam. The horizon is neutral or slightly alkaline.

## Zen Series

The Zen series consists of moderately deep, well drained soils that formed in loess. These soils are on plateaus, ridgetops, hillslopes, and benches. Slopes are 3 to 30 percent. Elevation is 1,800 to 2,900 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 50 degrees F, and the frost-free season is 130 to 170 days.

Typical pedon of Zen silt loam in an area of Zen-Benwy-Laric complex, 3 to 15 percent slopes, about 8 miles northeast of Selah, Washington; about 150 feet east and 1,600 feet south of the northwest corner of sec. 28, T. 15 N., R. 20 E.; USGS Badger Gap topographic quadrangle; latitude 46°45'44" N., longitude 120°20'16" W.

- A—0 to 3 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine irregular pores; neutral; abrupt wavy boundary.
- AB—3 to 10 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine tubular pores; neutral; clear wavy boundary.
- Bt1—10 to 16 inches; brown (10YR 5/3) silty clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; few faint clay films lining pores; common very fine roots; common very fine irregular pores; neutral; gradual wavy boundary.
- Bt2—16 to 22 inches; yellowish brown (10YR 5/4) silty clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine roots; common very fine irregular pores; few faint clay films on faces of peds and lining pores; 5 percent pebbles; neutral; clear wavy boundary.
- Btk—22 to 27 inches; yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine roots; many very fine irregular pores; few faint clay films on faces of peds and lining pores; few faint coatings of lime

lining pores; 10 percent pebbles; strongly effervescent; slightly alkaline; abrupt wavy boundary.

2R—27 inches; basalt.

Depth to basalt is 20 to 40 inches. The mollic epipedon is 7 to 19 inches thick. Depth to secondary lime is 17 to 30 inches.

The A horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The AB horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry and 2 or 3 moist. It is neutral or slightly alkaline.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is neutral to moderately alkaline. It is silt loam, clay loam, or silty clay loam.

The Btk horizon has value of 5 or 6 dry and 3 to 5 moist, and it has chroma of 3 or 4 dry or moist. It is slightly alkaline to strongly alkaline. It is gravelly loam, silt loam, or clay loam.

# Formation of the Soils

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Soil is a collection of three-dimensional natural bodies of mineral and organic matter on the earth's surface that support plants. The properties and characteristics of soil at any given place are determined by soil-forming processes that result from the physical and mineralogical composition of the parent material, the climate under which the parent material accumulated and under which the soil has existed since accumulation, topography, living organisms, and the length of time the processes of soil formation have acted on the parent material.

Soil formation results from a combination of many processes acting in different proportions and intensities at different times and places on the landscape. Soil formation includes the addition, removal, transfer, and transformation of material. In this survey area, soil-forming processes such as accumulation of organic matter and translocation and accumulation of soluble salts and silicate clay minerals have taken place.

The soil-forming factors are discussed separately in this section; however, there is a strong interdependence among all of the factors.

## Parent Material

The kind of soil that forms in a given area is strongly influenced by the nature of the parent material, particularly its mineralogy and texture. Mineralogy and texture affect various physical and chemical properties of the soil-forming environment. The soils in this survey area formed in colluvium, residuum, and slope alluvium derived from basalt; loess; glaciofluvial deposits; volcanic ash; recent alluvium; and old alluvium.

*Alluvial deposits on flood plains.*—Post-glacial, or Holocene, modification of the landscape include localized deposits of alluvium. The soils that formed in these deposits exhibit little development other than an accumulation of organic matter in the surface layer. The somewhat excessively drained Esquatzel soils and the well drained Weirman soils are examples.

*Glaciofluvial (outwash) deposits, old alluvial gravel deposits, and loess on terraces and benches in areas of channeled scabland.*—Large areas of terraces are

in the eastern part of the survey area. These terraces are composed of numerous graded beds of glaciofluvial deposits from the flooding of glacial Lake Missoula. Each bed was deposited during a separate flood that occurred 12,000 to 16,000 years ago.

The channel scabland has benches that have been scoured by glacial Lake Missoula floods. These benches have a thin mantle of post-scabland loess and some alluvium.

Before the uplifting and anticlinal folding (deformation of basalt), the Columbia River deposited terraces that contain gravel that is more than 50 percent quartzite. This gravel is at the base of the Ellensburg Formation.

Argids formed in the quartzite-rich gravel mixed with eolian deposits in the surface layer. Malaga soils formed in the glaciofluvial deposits. The Argids and Malaga soils are on terraces. Starbuck soils formed in loess and alluvium on benches. All of these soils have developed an ochric epipedon and a cambic or argillic horizon.

*Loess, slope alluvium, and old alluvium on old alluvial fans.*—The anticlinal folding (deformation of basalt) in the Yakima Folds province began during the Pliocene. Basaltic gravelly alluvium of the early Pleistocene, known as fanglomerates, eroded from anticlinal ridges and was deposited along the flanks of ridges on old alluvial fans (fan piedmonts).

During the Pliocene and early Pleistocene, the Cascade Range was uplifted, causing a gradual shift from a semihumid climate to a semiarid climate. The gradual increases in calcium carbonate and cementation of the fanglomerates are evidences of the drier climate. Benwy, Drysel, and Selah soils formed under this drier climate.

*Fine interbedded sediment on old alluvial fans.*—The Ellensburg Formation consists of layers of gravel, sand, silt, and clay that are overlying and between flows of Yakima Basalt. The uplift that produced the Cascade Range began during the Pliocene. This uplift resulted in considerable quantities of volcanic sand and gravel being washed from the Cascade Range and deposited along its flanks. These deposits make up the Ellensburg Formation. Meloza and Roza soils are examples of soils that formed in material derived

from the fine interbedded sediment. These soils have a high shrink-swell potential and are characterized by wide cracks in the surface.

*Residuum and colluvium derived from basalt and loess on hillslopes and ridges.*—During the Miocene and continuing into the Pliocene (1.5 to 12 million years ago), many extensive lava flows from fissure eruptions covered the survey area. Individual lava flows vary from a few dozen feet in thickness to more than 100 feet. The total thickness of this Columbia River Basalt is more than 10,000 feet in places.

The anticlinal folding (deformation of basalt) in the Yakima Folds province began during the Pliocene. This produced large ridges such as the Saddle Mountains, Umtanum Ridge, and Frenchman Hills. The Beezley Hills uplift began before the cessation of the lava flows and the folding of the Saddle Mountains and Frenchman Hills.

Vantage and Whiskeydick soils are examples of soils that formed in residuum and colluvium derived from basalt and some loess. Ralock and Wockum soils are examples of soils that formed in loess and in colluvium derived from basalt. The Ralock and Wockum soils are on north-facing hillslopes and have a thicker mantle of loess.

## Climate

Climate is an active factor in soil formation. Temperature and precipitation are the main climatic influences. As elevation increases, precipitation generally increases and temperature decreases. The survey area lies within the rain shadow formed by the Cascade Range.

Climate affects soil formation through its influence on the rate of weathering, the production and decomposition of organic matter, leaching, and erosion. It also affects the kind and density of vegetation that grows in an area.

The kind and degree of leaching or eluviation depend on the amount of water that has percolated through the soil under present and past climatic conditions. This is reflected in the soil characteristics. Percolation is influenced by the amount of precipitation, the rate of evapotranspiration, and the length of the frost-free period. Areas that have an aridic moisture regime have a higher rate of evapotranspiration that impedes leaching and can cause upward movement of soluble salts under some conditions.

Summers are sunny, warm, and dry. Generally, precipitation in summer is limited to the occasional thunderstorms which can be intense but commonly are of short duration. Winters are moist and relatively

mild at the lower elevations, but they are cooler at the higher elevations. Early and late in the growing season the soil temperature is relatively low, which increases the effectiveness of soil moisture by reducing the rate of evapotranspiration.

The warmer, drier part of the survey area receives 6 to 9 inches of precipitation annually and has an average annual air temperature of about 50 degrees F. The soils in this area have an aridic moisture regime that borders on xeric and a mesic temperature regime. The surface layer of these soils has less accumulation of organic matter than that of the soils in other parts of the survey area. Soils in this zone have an ochric epipedon and a cambic horizon or weakly expressed argillic horizon. Precipitation is adequate to leach the calcium carbonate only from the profile of very shallow or shallow soils. Examples of these soils are those of the Disage, Drino, and Malaga series.

Generally, the average annual precipitation increases to 9 to 12 inches as elevation increases and the average annual air temperature decreases to about 49 degrees. The soils at these middle elevations have an aridic moisture regime that borders on xeric and a mesic temperature regime. This environment produces enough plant growth for the development of a mollic epipedon. Soils in these areas have a mollic epipedon and a more strongly expressed argillic or cambic horizon. Precipitation is adequate to leach the calcium carbonate only from the profile of soils that are less than about 30 inches deep to basalt. Examples of these soils are those of the Clerf, Grinrod, Horseflat, and Ralock series.

More leaching occurs in the higher areas that receive 12 to 15 inches of precipitation annually than in areas that receive less precipitation. The soils in these areas that have an average annual air temperature of about 48 degrees have a mesic temperature regime. Those that have an average annual air temperature of about 43 degrees have a frigid temperature regime. All of these soils have a xeric moisture regime. These soils have a darker mollic epipedon and more organic matter than do the soils that have an aridic moisture regime. Soils in these areas have a mollic epipedon and an argillic or cambic horizon. Calcium carbonate has been leached from all of the soils except the very deep Colockum soils, which are on south-facing slopes. Examples of soils that have a mesic temperature regime are those of the Whiskeydick, Colockum, and Wockum series. Examples of soils that have a frigid temperature regime are those of the Frint, Gidwin, and Hogranch series, which are on north-facing slopes at higher elevations.

Past climatic conditions in the survey area, especially during the Pleistocene, favored periods of soil profile development followed by periods of profile destruction or burial. Profile development occurred during periods when sedimentation or erosion occurred at a slower rate than the soil-forming processes. Frye suggested that glacial intervals were periods of soil destruction or burial and that interglacial intervals of the Pleistocene were periods of soil formation (Frye 1951). Soils in this survey area appear to have been eroded to the depth of a resistant horizon, such as a clay-rich B horizon. Some of the soils in the survey area have a stone line at the surface of the strongly developed argillic horizon. The long axis of the rock fragments is oriented parallel to the surface of the horizon. This orientation suggests that the stone line is a buried erosion pavement that formed as a result of erosion of fine grained material, which concentrated rock fragment lag on the surface. Examples of soils that have a stone line are those of the Clerf series.

Some relict soil features reflect more moist climatic conditions. Periods of freezing temperatures resulted in frost sorting and solifluction (Kaatz 1959). Solifluction occurs when the ground is frozen part of the year, forming interstitial ice and lens of ice. When the soils thaw, downslope displacement takes place. Some soils, such as those of the Caliralls series, have a stone line that could be related to erosion and deposition during periods of solifluction.

Kaatz maintained that intense frost action during a periglacial climatic condition was a significant factor in the formation of patterned ground. Mounds formed where the soil mantle was less than 6 feet thick, which provided conditions favorable for the formation of ice-wedge polygons. Examples of soils in areas of patterned ground include those of the Laric-Zen complex, 3 to 15 percent slopes. The Laric soils are between mounds, and the Zen soils are on mounds.

## Topography

Topography influences soil formation through its effect on drainage, erosion, soil depth, penetration of water into the soil, microclimate of the soil, and amount and type of vegetation that grows on the soil. Steepness of slope, landscape position, and aspect are important elements of topography.

Much of the precipitation received percolates through the soil, but some of it evaporates. In strongly sloping to steep areas, runoff generally increases as slope increases. The more water that enters the soil, the greater the depth to which the soil is leached and weathered. Topography affects exposure to sun and

wind and air drainage, which results in important differences in vegetation and soil properties. For example, south-facing slopes receive more direct radiation from the sun than do north-facing slopes. Consequently, soils on south-facing slopes are warmer and drier.

Aspect also influences the amount of loess that accumulates. South- and southwest-facing slopes are exposed to the prevailing wind; thus, there is a smaller accumulation of loess on these slopes than on north-facing slopes. Also, because of the higher rate of evapotranspiration on south- and southwest-facing slopes, the density of plants is lower on these slopes than on north-facing slopes. The shallow soils of the Vantage series are examples of those on convex south- and southwest-facing slopes. The very deep soils of the Ralock series are examples of those on north-facing slopes.

## Living Organisms

Living organisms are active in the formation of soils. Plants, micro-organisms, earthworms, man, and other forms of life are important in determining the rate of soil formation. Accumulation of organic matter, nutrient cycling, profile mixing, and structural stability of soil aggregates are affected by living organisms. The organisms that live on or in the soil at any given location are determined by climate, parent material, topography or relief, and the age of the soil.

Plant cover reduces runoff and erosion and helps to stabilize the soil surface, which can have an important effect on the rate of soil development. Plant roots penetrate the earth's mantle and improve the permeability and aeration of the soil. In this survey area, the soils formed in two major vegetation zones—the big sagebrush-bluebunch wheatgrass zone and the threetip sagebrush-Idaho fescue zone. These stable plant communities generally grow on moderately deep to very deep, well drained, medium textured soils.

The big sagebrush-bluebunch wheatgrass zone is in areas of soils that have an aridic moisture regime. Where the average annual precipitation is 6 to 9 inches, the plant community produces less organic matter and the soils develop an ochric epipedon. Drysel soils are an example. Where the average annual precipitation is 9 to 12 inches, the plant community produces more organic matter and the soils develop a mollic epipedon. Benwy soils are an example.

The threetip sagebrush-Idaho fescue zone is mainly in areas of soils that have a xeric moisture regime. The

average annual precipitation in these areas is about 12 inches. Soils that support this plant community have a higher organic matter content than those that formed in the big sagebrush-bluebunch wheatgrass zone. A mollic epipedon has developed in the soils. Colockum soils are an example.

Edaphic climax communities are those affected by the soil characteristics. They occur on very shallow and shallow soils. The very shallow soils of the Argabak series are an example.

Topographic climax communities are those affected by the configuration of the land surface, including relief and position. These communities occur on soils that have a special microclimate, such as those that are steep and have a north aspect. Examples are soils of the Ralock series.

Man's influence in the survey area has been considerable. Vehicle use has disturbed the plant cover, exposing the soils to erosion, and has altered soil structure.

## Time

Soil formation begins when hard rock is exposed on the earth's surface, alluvial sediment appears above the floodwater, or a fresh mantle of loess or other regolith is laid down. As soil formation progresses, characteristic layers, or horizons, develop. Generally, the more mature soils have a higher number of horizons and the horizons are thicker and more distinct. The length of time required for soil to develop depends on the nature of the parent material and the intensity of the soil-forming factors.

The parent material in the survey area includes basalt of the Miocene and Pliocene (2 to 25 million years old), loess that is older than the channeled scabland (more than 16,000 years old), colluvium of the pre-Holocene and early Holocene, residuum of the pre-Holocene, glacial Lake Missoula glaciofluvial deposits (12,000 to 16,000 years old), and alluvium of

post-glacial age, or of the Holocene (less than 10,000 years old).

Most of the soils in the survey area have superimposed profiles, which are a result of the development of a young, weathering profile on an older, deeper profile. These are particularly common on plateaus, benches, and hillslopes, primarily because of the stability of the land surface.

Evidence of superimposed profiles of different ages may be suggested by discontinuities in the soil profile. Clerf and Whiskeydick soils are examples of those that have an abrupt change in texture and color at a depth of about 10 inches. Some pedons have a stone line at this depth. Other less obvious discontinuities occur in soil profiles in the survey area, which may also indicate the presence of superimposed profiles of different ages.

Most of the soils on flood plains, alluvial fans, and low terraces are young. Soils that formed in Holocene alluvium exhibit little development other than an accumulation of organic matter in the surface layer. Esquatzel and Weirman soils are examples.

Soils on terraces formed by glacial Lake Missoula flood deposits have had enough time to form an ochric epipedon, and enough downward leaching of calcium carbonate has taken place to form a cambic horizon. Malaga soils are an example.

Soils on old alluvial fans have been in place long enough to form an ochric or mollic epipedon and a cambic or argillic horizon. Soils that have an ochric epipedon are in the drier areas, or those that receive 6 to 9 inches of precipitation annually. Benwy, Drysel, Manastash, and Selah soils are examples.

Soils on hillslopes, ridges, and benches have been in place long enough to form an ochric or mollic epipedon and an argillic or cambic horizon. Soils that have an ochric epipedon are in the drier areas, or those that receive 6 to 9 inches of precipitation annually. Disage, Clerf, Vantage, and Wockum soils are examples.

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# Glossary

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**ABC soil.** A soil having an A, a B, and a C horizon.

**Ablation till.** Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

**AC soil.** A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipyridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Area reclaim (in tables).** An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Aspect.** The direction in which a slope faces.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 2
Low .....	2 to 3.75
Moderate .....	3.75 to 5
High .....	5 to 7.5
Very high .....	more than 7.5

**Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

**Badland.** Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Basal till.** Compact glacial till deposited beneath the ice.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

**Base slope.** A geomorphic component of hills

consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

**Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

**Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Blowout.** A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

**Bottom land.** The normal flood plain of a stream, subject to flooding.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

**Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

**Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

**Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles.

Surface tension is the adhesive force that holds capillary water in the soil.

**Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Cement rock.** Shaly limestone used in the manufacture of cement.

**Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

**Chemical treatment.** Control of unwanted vegetation through the use of chemicals.

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

**Cirque.** A semicircular, concave, bowl-like area that has steep faces primarily resulting from glacial ice and snow abrasion.

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

**Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

**Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**COLE (coefficient of linear extensibility).** See Linear extensibility.

**Colluvium.** Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Congeliturbate.** Soil material disturbed by frost action.

**Conglomerate.** A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the

soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Cropping system.** Growing crops according to a planned system of rotation and management practices.

**Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

**Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

**Crown.** The upper part of a tree or shrub, including the living branches and their foliage.

**Cutbanks cave (in tables).** The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Dense layer (in tables).** A very firm, massive layer that has a bulk density of more than 1.8 grams per

cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

**Drainage class (natural).** Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the “Soil Survey Manual.”

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Draw.** A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

**Drumlin.** A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

**Duff.** A generally fine organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

**Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct

natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion (geologic).* Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion (accelerated).* Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

**Esker.** A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

**Excess fines (in tables).** Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

- Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.
- Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- Fan terrace.** A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.
- Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- Firebreak.** Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.
- First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.
- Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.
- Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.
- Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.
- Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.
- Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb.** Any herbaceous plant not a grass or a sedge.
- Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- Gilgai.** Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.
- Glacial drift.** Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.
- Glacial outwash.** Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.
- Glacial till.** Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.
- Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.
- Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Ground water.** Water filling all the unblocked pores of the material below the water table.

**Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

**Head slope.** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

**Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

**High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

**Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey

Manual." The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

*R layer.*—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Igneous rock.** Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasesers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	very low
0.2 to 0.4 .....	low
0.4 to 0.75 .....	moderately low
0.75 to 1.25 .....	moderate
1.25 to 1.75 .....	moderately high
1.75 to 2.5 .....	high
More than 2.5 .....	very high

**Interfluve.** An elevated area between two drainageways that sheds water to those drainageways.

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay

content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Basin.*—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

*Border.*—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

*Controlled flooding.*—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation.*—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*—Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Kame.** An irregular, short ridge or hill of stratified glacial drift.

**Karst (topography).** The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**$K_{sat}$ .** Saturated hydraulic conductivity. (See Permeability.)

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones (in tables).** Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

**Low strength.** The soil is not strong enough to support loads.

**Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Mesa.** A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Moraine.** An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Mountain.** A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

**Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

**Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

**Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low .....	less than 0.5 percent
Low .....	0.5 to 1.0 percent
Moderately low .....	1.0 to 2.0 percent
Moderate .....	2.0 to 4.0 percent
High .....	4.0 to 8.0 percent
Very high .....	more than 8.0 percent

**Outwash plain.** A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedisediment.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to

10 square meters), depending on the variability of the soil.

**Percolation.** The movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permafrost.** Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable .....	less than 0.0015 inch
Very slow .....	0.0015 to 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

**Playa.** The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding

occurs primarily in response to precipitation and runoff.

**Plinthite.** The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Potential native plant community.** See Climax plant community.

**Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras,

and areas that support certain forb and shrub communities.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid .....	less than 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly alkaline .....	7.4 to 7.8
Moderately alkaline .....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline .....	9.1 and higher

**Red beds.** Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material

that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

**Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.

**Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed

from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

**Seepage** (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Shale.** Sedimentary rock formed by the hardening of a clay deposit.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Sinkhole.** A depression in the landscape where limestone has been dissolved.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slick spot.** A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level .....	0 to 3 percent
Gently sloping .....	1 to 8 percent
Strongly sloping .....	4 to 16 percent
Moderately steep .....	10 to 30 percent
Steep .....	20 to 60 percent
Very steep .....	45 percent and higher

Classes for complex slopes are as follows:

Nearly level .....	0 to 3 percent
Undulating .....	1 to 8 percent
Rolling .....	4 to 16 percent
Hilly .....	10 to 30 percent
Steep .....	20 to 60 percent
Very steep .....	45 percent and higher

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Sloughed till.** Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

**Slow intake** (in tables). The slow movement of water into the soil.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Small stones** (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**Sodic (alkali) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Sodicity.** The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of  $\text{Na}^+$  to  $\text{Ca}^{++} + \text{Mg}^{++}$ . The degrees of sodicity and their respective ratios are:

Slight .....	less than 13:1
Moderate .....	13-30:1
Strong .....	more than 30:1

**Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies

material that weathered in place and is overlain by recent sediment of variable thickness.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.

**Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

**Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Talus.** Fragments of rock and other soil material

accumulated by gravity at the foot of cliffs or steep slopes.

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

**Terminal moraine.** A belt of thick glacial drift that generally marks the termination of important glacial advances.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace (geologic).** An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

**Thin layer (in tables).** Otherwise suitable soil material that is too thin for the specified use.

**Till plain.** An extensive area of nearly level to undulating soils underlain by glacial till.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toeslope.** The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

**Too arid (in tables).** The soil is dry most of the time, and vegetation is difficult to establish.

**Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

**Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.

**Upland.** Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

**Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Varve.** A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

**Water bars.** Smooth, shallow ditches or depressional

areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

**Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow.** The uprooting and tipping over of trees by the wind.

# Tables

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Table 1.--Temperature and Precipitation  
(Recorded in the period 1961-90 at Moxee City 10E, Washington)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
°F	°F	°F	°F	°F	Units	In	In	In	In	In	
January-----	36.2	22.3	29.3	58	-2	12	0.89	0.32	1.36	3	4.9
February-----	44.3	26.8	35.6	62	5	27	0.59	0.21	1.03	2	1.6
March-----	53.2	30.2	41.7	70	15	100	0.70	0.23	1.09	2	0.7
April-----	61.2	34.7	47.9	80	21	243	0.62	0.19	1.10	2	0.1
May-----	69.7	40.1	54.9	89	26	460	0.62	0.23	1.04	1	0.0
June-----	78.4	47.5	63.0	96	33	689	0.52	0.14	0.85	1	0.0
July-----	85.2	51.7	68.4	100	38	879	0.25	0.05	0.53	0	0.0
August-----	84.2	51.4	67.8	100	38	857	0.55	0.07	1.16	1	0.0
September---	75.4	45.1	60.2	92	30	607	0.39	0.08	0.71	1	0.0
October-----	62.6	36.3	49.4	82	21	298	0.48	0.16	0.84	1	0.1
November----	46.2	29.8	38.0	64	11	60	1.02	0.42	1.60	3	1.2
December----	36.0	22.8	29.4	55	-4	9	1.01	0.42	1.57	3	5.5
Yearly:											
Average----	61.1	36.6	48.8	---	---	---	---	---	---	---	---
Extreme----	108.0	-23.0	---	102	-9	---	---	---	---	---	---
Total-----	---	---	---	---	---	4,241	7.64	6.14	8.74	20	14.1

\* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Moxee City 10E, Washington)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
<b>Last freezing temperature in spring:</b>			
1 year in 10 later than--	May 5	May 19	June 9
2 years in 10 later than--	April 23	May 11	June 3
5 years in 10 later than--	April 2	April 26	May 22
<b>First freezing temperature in fall:</b>			
1 year in 10 earlier than--	October 12	September 28	September 19
2 years in 10 earlier than--	October 18	October 4	September 24
5 years in 10 earlier than--	October 30	October 15	October 4

Table 3.--Growing Season

(Recorded in the period 1961-90 at Moxee City 10E, Washington)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<i>Days</i>	<i>Days</i>	<i>Days</i>
9 years in 10	168	140	112
8 years in 10	182	151	120
5 years in 10	210	171	135
2 years in 10	238	191	149
1 year in 10	253	202	157

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Kittitas County	Yakima County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
1	Argabak very cobbly loam, 3 to 15 percent slopes-----	4,472	2,919	7,391	2.3
2	Argabak very cobbly loam, 15 to 30 percent slopes-----	584	1,126	1,710	0.5
3	Argabak extremely cobbly loam, 3 to 15 percent slopes-----	241	2,047	2,288	0.7
4	Argabak extremely cobbly loam, 15 to 30 percent slopes-----	---	1,086	1,086	0.3
5	Argabak very stony loam, 3 to 15 percent slopes-----	1,575	295	1,870	0.6
6	Argabak very stony loam, 15 to 30 percent slopes-----	310	700	1,010	0.3
7	Argabak-Camaspach complex, 3 to 15 percent slopes-----	221	---	221	*
8	Argabak-Horseflat complex, 3 to 15 percent slopes-----	1,520	4,393	5,913	1.8
9	Argabak-Horseflat complex, 15 to 30 percent slopes-----	155	913	1,068	0.3
10	Argabak-Vantage complex, 3 to 15 percent slopes-----	3,503	256	3,759	1.2
11	Argabak-Whiskeydick complex, 3 to 15 percent slopes-----	197	411	608	0.2
12	Argabak-Whiskeydick complex, 15 to 30 percent slopes-----	50	1,132	1,182	0.4
13	Argabak-Windry complex, 3 to 15 percent slopes-----	74	1,745	1,819	0.6
14	Argabak-Zen-Grinrod complex, 3 to 15 percent slopes-----	172	474	646	0.2
15	Argabak-Zen-Grinrod complex, 15 to 30 percent slopes-----	105	236	341	0.1
16	Argids, strongly sloping-----	---	413	413	0.1
17	Argids, moderately steep-----	---	456	456	0.1
18	Argixerolls-Durixerolls complex, steep north	41	120	161	*
19	Argixerolls-Durixerolls complex, steep south	173	181	354	0.1
20	Benwy silt loam, 5 to 10 percent slopes-----	1,749	8,546	10,295	3.2
21	Benwy silt loam, 10 to 15 percent slopes-----	1,738	3,922	5,660	1.7
22	Benwy silt loam, 15 to 30 percent slopes-----	348	2,169	2,517	0.8
23	Benwy-Vantage-Argabak complex, 3 to 15 percent slopes-----	231	731	962	0.3
24	Benwy-Vantage-Argabak complex, 15 to 30 percent slopes-----	118	233	351	0.1
25	Blint very cobbly loam, 15 to 30 percent slopes-----	267	1,862	2,129	0.7
26	Blint very cobbly loam, 45 to 60 percent slopes-----	111	520	631	0.2
27	Blint-Windry complex, 15 to 30 percent slopes	88	752	840	0.3
28	Brehm silt loam, 5 to 10 percent slopes-----	---	2,656	2,656	0.8
29	Brehm-Gorskel-Gorst complex, 10 to 15 percent slopes-----	145	4,532	4,677	1.4
30	Caliralls silt loam, 10 to 15 percent slopes	356	476	832	0.3
31	Caliralls silt loam, 15 to 30 percent slopes	274	925	1,199	0.4
32	Caliralls-Clerf complex, 15 to 30 percent slopes-----	635	892	1,527	0.5
33	Caliralls-Clerf complex, 30 to 45 percent slopes-----	625	495	1,120	0.3
34	Caliralls-Horseflat complex, 15 to 30 percent slopes-----	54	597	651	0.2
35	Camaspach very cobbly loam, 3 to 15 percent slopes-----	799	217	1,016	0.3
36	Camaspach very cobbly loam, 15 to 30 percent slopes-----	654	531	1,185	0.4

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Kittitas County	Yakima County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
37	Camaspatch very cobbly loam, thin, 3 to 15 percent slopes-----	1,041	469	1,510	0.5
38	Camaspatch very cobbly loam, thin, 15 to 30 percent slopes-----	54	650	704	0.2
39	Camaspatch-Colockum complex, 15 to 30 percent slopes-----	49	543	592	0.2
40	Camaspatch-Tanksel complex, 30 to 45 percent slopes-----	501	406	907	0.3
41	Camaspatch-Tanksel-Lainand complex, 45 to 60 percent slopes-----	1,635	---	1,635	0.5
42	Camaspatch-Whiskeydick complex, 3 to 15 percent slopes-----	520	411	931	0.3
43	Camaspatch-Whiskeydick complex, 15 to 30 percent slopes-----	630	1,096	1,726	0.5
44	Camaspatch-Whiskeydick complex, 30 to 45 percent slopes-----	517	2,201	2,718	0.8
45	Camaspatch-Whiskeydick complex, 45 to 60 percent slopes-----	157	398	555	0.2
46	Clerf very cobbly loam, 15 to 30 percent slopes-----	839	322	1,161	0.4
47	Clerf very cobbly loam, 30 to 45 percent slopes-----	483	162	645	0.2
48	Colockum silt loam, 5 to 10 percent slopes---	29	1,583	1,612	0.5
49	Colockum silt loam, 10 to 15 percent slopes--	37	2,028	2,065	0.6
50	Colockum silt loam, 15 to 30 percent slopes--	35	1,046	1,081	0.3
51	Colockum-Tronsen complex, 3 to 15 percent slopes-----	56	197	253	*
52	Disage very cobbly loam, 3 to 15 percent slopes-----	921	695	1,616	0.5
53	Disage very cobbly loam, 15 to 30 percent slopes-----	1,106	169	1,275	0.4
54	Disage very stony loam, 30 to 45 percent slopes-----	474	701	1,175	0.4
55	Disage-Clenage complex, 15 to 30 percent slopes-----	1,599	---	1,599	0.5
56	Drino cobbly loam, 15 to 30 percent slopes---	472	266	738	0.2
57	Drino very stony loam, 15 to 30 percent slopes-----	209	247	456	0.1
58	Drino-Disage-Kiona complex, 30 to 45 percent slopes-----	444	268	712	0.2
59	Drino-Rubble land-Rock outcrop complex, 30 to 75 percent slopes-----	413	---	413	0.1
60	Drino-Rubble land-Rock outcrop complex, 30 to 75 percent north slopes-----	313	48	361	0.1
61	Drino-Sohappy-Fortyday complex, 30 to 45 percent slopes-----	1,330	1,138	2,468	0.8
62	Drino-Sohappy-Fortyday complex, 45 to 60 percent slopes-----	256	872	1,128	0.3
63	Drysel loam, 2 to 5 percent slopes-----	723	224	947	0.3
64	Drysel loam, 5 to 10 percent slopes-----	945	433	1,378	0.4
65	Durtash loam, 5 to 10 percent slopes-----	110	447	557	0.2
66	Esquatzel silt loam, 0 to 2 percent slopes---	200	529	729	0.2
67	Esquatzel silt loam, 2 to 5 percent slopes---	274	293	567	0.2
68	Esquatzel-Aquolls-Weirman complex, channeled, 0 to 5 percent slopes-----	491	---	491	0.2
69	Esquatzel-Weirman complex, channeled, 0 to 2 percent slopes-----	878	2,318	3,196	1.0
70	Finley complex, 3 to 15 percent slopes-----	240	---	240	*
71	Fortyday-Drino-Nevo complex, 15 to 30 percent slopes-----	1,430	941	2,371	0.7

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Kittitas County	Yakima County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
72	Fortyday-Drino-Nevo complex, 30 to 45 percent slopes-----	1,909	535	2,444	0.8
73	Fortyday-Drino-Sohappy complex, 30 to 45 percent slopes-----	679	894	1,573	0.5
74	Fortyday-Nevo-Rock outcrop, 3 to 15 percent slopes-----	1,911	---	1,911	0.6
75	Fortyday-Rubble land-Rock outcrop complex, 45 to 70 percent slopes-----	1,646	152	1,798	0.6
76	Frint-Gidwin-Rubble land complex, 45 to 70 percent slopes-----	---	495	495	0.2
77	Frint-Hogranh complex, 45 to 70 percent slopes-----	---	1,244	1,244	0.4
78	Frint-Hogranh-Gidwin complex, 45 to 70 percent slopes-----	---	1,632	1,632	0.5
79	Gorskel complex, 3 to 15 percent slopes-----	594	647	1,241	0.4
80	Gorst loam, 2 to 5 percent slopes-----	120	929	1,049	0.3
81	Grinrod-Horseflat complex, 15 to 30 percent slopes-----	2,205	3,313	5,518	1.7
82	Grinrod-Horseflat complex, 45 to 60 percent slopes-----	1,419	1,377	2,796	0.9
83	Haploxerolls-Orthents-Aquolls complex, channeled, 0 to 5 percent slopes-----	963	930	1,893	0.6
84	Horseflat very cobbly loam, 3 to 15 percent slopes-----	1,586	206	1,792	0.6
85	Horseflat very cobbly loam, 15 to 30 percent slopes-----	344	105	449	0.1
86	Kiona very stony loam, 45 to 60 percent slopes-----	94	111	205	*
87	Kiona-Rubble land complex, 30 to 75 percent slopes-----	218	833	1,051	0.3
88	Lainand-Tanksel complex, 30 to 45 percent slopes-----	286	443	729	0.2
89	Laric very gravelly loam, 3 to 15 percent slopes-----	1,469	466	1,935	0.6
90	Laric-Zen complex, 3 to 15 percent slopes-----	2,626	790	3,416	1.0
91	Levnik-Nosser-Nevo complex, 3 to 15 percent slopes-----	2,237	---	2,237	0.7
92	Malaga gravelly sandy loam, 5 to 10 percent slopes-----	961	94	1,055	0.3
93	Malaga cobbly sandy loam, 3 to 15 percent slopes-----	1,667	130	1,797	0.6
94	Manastash loam, 2 to 5 percent slopes-----	211	206	417	0.1
95	Manastash loam, 5 to 10 percent slopes-----	439	376	815	0.3
96	Manastash-Durtash complex, 5 to 10 percent slopes-----	1,210	1,050	2,260	0.7
97	Manastash-Durtash complex, 15 to 30 percent slopes-----	353	70	423	0.1
98	Manastash-Meloza-Durtash complex, 15 to 30 percent slopes-----	107	317	424	0.1
99	Manastash-Selah-Gorst complex, 15 to 30 percent slopes-----	391	437	828	0.3
100	Marlic-Zen-Laric complex, 3 to 15 percent slopes-----	4,813	---	4,813	1.5
101	Meloza-Roza complex, 5 to 10 percent slopes-----	79	289	368	0.1
102	Meloza-Roza complex, 10 to 15 percent slopes-----	---	392	392	0.1
103	Meloza-Roza complex, 15 to 30 percent slopes-----	113	329	442	0.1
104	Nack-Opnish complex, 0 to 2 percent slopes-----	82	---	82	*
105	Neppel-Scoon complex, 10 to 15 percent slopes-----	242	171	413	0.1
106	Nevo extremely gravelly sandy loam, 3 to 15 percent slopes-----	723	---	723	0.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Kittitas County	Yakima County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
107	Nevo-Fortyday complex, 3 to 15 percent slopes	2,036	897	2,933	0.9
108	Nevo complex, 3 to 15 percent slopes-----	2,444	609	3,053	0.9
109	Nevo complex, 15 to 30 percent slopes-----	460	123	583	0.2
110	Niben-Vantage-Benwy complex, 15 to 30 percent slopes-----	1,809	---	1,809	0.6
111	Norod-Horseflat complex, 15 to 30 percent slopes-----	1,327	873	2,200	0.7
112	Norod-Horseflat complex, 30 to 45 percent slopes-----	253	142	395	0.1
113	Norod-Horseflat complex, 45 to 60 percent slopes-----	1,143	812	1,955	0.6
114	Norod-Ralock-Horseflat complex, 15 to 30 percent slopes-----	392	705	1,097	0.3
115	Norod-Ralock-Horseflat complex, 30 to 45 percent slopes-----	699	1,052	1,751	0.5
116	Norod-Ralock-Horseflat complex, 45 to 60 percent slopes-----	481	1,211	1,692	0.5
117	Norod-Rubble land complex, 30 to 75 percent slopes-----	248	282	530	0.2
118	Nosser-Levnik complex, 3 to 15 percent slopes	1,575	---	1,575	0.5
119	Nosser-Levnik complex, 15 to 30 percent slopes-----	562	---	562	0.2
120	Palerf-Ralock-Vantage complex, 15 to 30 percent slopes-----	1,943	788	2,731	0.8
121	Palerf-Vantage complex, 15 to 30 percent slopes-----	913	616	1,529	0.5
122	Palixerolls-Patron complex, 15 to 30 percent slopes-----	320	---	320	*
123	Patron-Camaspatch complex, 15 to 30 percent slopes-----	1,209	---	1,209	0.4
124	Prosser silt loam, 10 to 15 percent slopes---	87	1,377	1,464	0.4
125	Prosser-Nevo complex, 3 to 15 percent slopes	67	1,620	1,687	0.5
126	Ralock silt loam, 15 to 30 percent slopes----	195	512	707	0.2
127	Ralock silt loam, 30 to 45 percent slopes----	599	296	895	0.3
128	Ralock-Horseflat complex, 15 to 30 percent slopes-----	529	1,744	2,273	0.7
129	Ralock-Palerf complex, 15 to 30 percent slopes-----	3,312	1,670	4,982	1.5
130	Ralock-Palerf complex, 30 to 45 percent slopes-----	1,223	695	1,918	0.6
131	Rock outcrop-----	222	63	285	*
132	Rollinger silt loam, 5 to 10 percent slopes--	327	---	327	0.1
133	Rollinger silt loam, 10 to 15 percent slopes	1,442	---	1,442	0.4
134	Rollinger silt loam, 15 to 30 percent slopes	397	2,590	2,987	0.9
135	Rollinger silt loam, 30 to 45 percent slopes	411	---	411	0.1
136	Rollinger silt loam, 45 to 60 percent slopes	318	---	318	*
137	Rubble land-Rock outcrop complex, 60 to 120 percent slopes-----	134	469	603	0.2
138	Rubble land-Rock outcrop-Kiona complex, 60 to 120 percent slopes-----	419	219	638	0.2
139	Sagehill-Burbank-Malaga complex, 30 to 60 percent slopes-----	363	---	363	0.1
140	Scoon loam, 5 to 10 percent slopes-----	280	296	576	0.2
141	Selah silt loam, 0 to 2 percent slopes-----	61	325	386	0.1
142	Selah silt loam, 2 to 5 percent slopes-----	3,655	2,997	6,652	2.0
143	Selah silt loam, 5 to 10 percent slopes-----	2,255	2,420	4,675	1.4
144	Selah silt loam, 10 to 15 percent slopes-----	929	551	1,480	0.5
145	Selah silt loam, 15 to 30 percent slopes-----	568	500	1,068	0.3
146	Sohappy-Fortyday complex, 3 to 15 percent slopes-----	73	213	286	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Kittitas County	Yakima County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
147	Sohappy-Fortyday complex, 15 to 30 percent slopes-----	845	830	1,675	0.5
148	Sohappy-Fortyday complex, 30 to 45 percent slopes-----	494	37	531	0.2
149	Starbuck-Rock outcrop complex, 3 to 15 percent slopes-----	946	476	1,422	0.4
150	Tanksel-Patron-Camaspach complex, 15 to 30 percent slopes-----	1,976	108	2,084	0.6
151	Tanksel-Patron-Camaspach complex, 30 to 45 percent slopes-----	605	322	927	0.3
152	Tanksel-Wockum complex, 15 to 30 percent slopes-----	302	595	897	0.3
153	Tanksel-Wockum complex, 30 to 45 percent slopes-----	93	684	777	0.2
154	Tanksel-Wockum complex, 45 to 65 percent slopes-----	---	302	302	*
155	Terlan gravelly loam, 2 to 5 percent slopes--	122	64	186	*
156	Terlan gravelly loam, 5 to 10 percent slopes	461	113	574	0.2
157	Terlan-Durtash-Selah complex, 2 to 5 percent slopes-----	467	---	467	0.1
158	Terlan-Durtash-Selah complex, 5 to 15 percent slopes-----	1,026	55	1,081	0.3
159	Timmerman complex, 2 to 5 percent slopes----	291	---	291	*
160	Tronsen stony loam, 3 to 15 percent slopes---	101	143	244	*
161	Tronsen stony loam, 15 to 30 percent slopes--	---	208	208	*
162	Vantage extremely gravelly loam, 3 to 15 percent slopes-----	352	50	402	0.1
163	Vantage very cobbly loam, 3 to 15 percent slopes-----	2,909	531	3,440	1.1
164	Vantage very cobbly loam, 15 to 30 percent slopes-----	786	746	1,532	0.5
165	Vantage very cobbly loam, thin, 3 to 15 percent slopes-----	4,668	2,194	6,862	2.1
166	Vantage very cobbly loam, thin, 15 to 30 percent slopes-----	1,112	280	1,392	0.4
167	Vantage-Benwy-Argabak complex, 3 to 15 percent slopes-----	361	1,137	1,498	0.5
168	Vantage-Benwy-Argabak complex, 15 to 30 percent slopes-----	360	205	565	0.2
169	Vantage-Clerf complex, 3 to 15 percent slopes	5,450	1,686	7,136	2.2
170	Vantage-Clerf complex, 15 to 30 percent slopes-----	5,860	4,134	9,994	3.1
171	Vantage-Clerf complex, 30 to 45 percent slopes-----	2,153	2,014	4,167	1.3
172	Vantage-Clerf-Rubble land complex, 30 to 45 percent slopes-----	1,262	584	1,846	0.6
173	Vantage-Niben-Clerf complex, 3 to 15 percent slopes-----	940	---	940	0.3
174	Vantage very cobbly loams complex, 3 to 15 percent slopes-----	685	665	1,350	0.4
175	Vantage very stony loams complex, 3 to 15 percent slopes-----	608	1,245	1,853	0.6
176	Vantage very stony loams complex, 15 to 30 percent slopes-----	642	805	1,447	0.4
177	Wanapum cobbly loam, 2 to 5 percent slopes---	1,320	42	1,362	0.4
178	Wanapum complex, 5 to 10 percent slopes-----	434	1,025	1,459	0.4
179	Wanapum complex, 10 to 15 percent slopes-----	588	790	1,378	0.4
180	Whiskeydick very cobbly loam, 15 to 30 percent slopes-----	---	308	308	*
181	Whiskeydick very cobbly loam, 30 to 45 percent slopes-----	---	265	265	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Kittitas County	Yakima County	Total	
				Area	Extent
		Acres	Acres	Acres	Pct
182	Whiskeydick-Tronsen-Camaspatch complex, 15 to 30 percent slopes-----	144	582	726	0.2
183	Whiskeydick-Tronsen-Camaspatch complex, 30 to 45 percent slopes-----	290	894	1,184	0.4
184	Whiskeydick-Tronsen-Camaspatch complex, 45 to 60 percent slopes-----	178	500	678	0.2
185	Winchester-Sagehill-Burbank complex, 5 to 30 percent slopes-----	502	---	502	0.2
186	Wipple cobbly clay loam, 3 to 15 percent slopes-----	347	69	416	0.1
187	Wipple cobbly clay loam, 15 to 30 percent slopes-----	785	56	841	0.3
188	Wipple cobbly clay loam, 30 to 45 percent slopes-----	591	91	682	0.2
189	Wockum silt loam, 15 to 30 percent slopes----	78	952	1,030	0.3
190	Wockum silt loam, 30 to 45 percent slopes----	117	252	369	0.1
191	Wockum-Blint complex, 15 to 30 percent slopes	---	1,207	1,207	0.4
192	Wockum-Blint-Windry complex, 45 to 60 percent slopes-----	92	1,489	1,581	0.5
193	Zen silt loam, 5 to 10 percent slopes-----	897	2,158	3,055	0.9
194	Zen silt loam, 10 to 15 percent slopes-----	510	1,548	2,058	0.6
195	Zen silt loam, 15 to 30 percent slopes-----	375	624	999	0.3
196	Zen-Benwy-Laric complex, 3 to 15 percent slopes-----	2,881	339	3,220	1.0
197	Zen-Marlic-Laric complex, 3 to 15 percent slopes-----	5,175	4,826	10,001	3.1
198	Torrifluvents complex, nearly level-----	137	---	137	*
199	Haploxerolls complex, 3 to 5 percent slopes--	312	---	312	*
200	Malaga complex, 3 to 15 percent slopes-----	45	---	45	*
201	Semal complex, 3 to 15 percent slopes-----	763	---	763	0.2
202	Water-----	3,110	1,559	4,669	1.4
203	Pits-----	35	---	35	*
204	Dam-----	14	---	14	*
205	Arents, moderately steep-----	102	---	102	*
206	Burbank loamy fine sand, 0 to 5 percent slopes-----	10	---	10	*
207	Rock Creek very stony silt loam, 0 to 30 percent slopes-----	---	495	495	0.2
208	Kiona stony silt loam, 15 to 45 percent slopes-----	---	670	670	0.2
209	Licksillet very stony silt loam, 5 to 45 percent slopes-----	---	2,020	2,020	0.6
210	Starbuck-Rock outcrop complex, 0 to 45 percent slopes-----	---	261	261	*
211	Starbuck-Rock outcrop complex, 45 to 60 percent slopes-----	---	324	324	*
212	Willis silt loam, 2 to 5 percent slopes-----	---	1,042	1,042	0.3
213	Willis silt loam, 5 to 8 percent slopes-----	---	64	64	*
214	Willis silt loam, 8 to 15 percent slopes-----	---	848	848	0.3
215	Bakeoven very cobbly silt loam, 0 to 30 percent slopes-----	---	331	331	0.1
	Total-----	164,082	161,534	325,616	100.0

\* Less than 0.1 percent.

Table 5.--Rangeland Productivity and Characteristic Plant Communities

(Only the soils that support rangeland vegetation suitable for grazing are rated.)

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
1: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
2: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
3: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
4: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
5: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
6: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
7:						
Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Camaspatch-----	Clayey 9-15 Pz	400	300	200	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	15
					Rock buckwheat-----	8
					Hood's phlox-----	5
					Narrowleaf goldenweed-----	5
					Threetip sagebrush-----	5
					Balsamroot-----	4
					Hooker's balsamroot-----	2
					Lupine-----	2
					Thymeleaf buckwheat-----	2
8:						
Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		
9: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass----- Stiff sagebrush----- Thymeleaf buckwheat----- Hood's phlox----- Hooker's balsamroot----- Bluebunch wheatgrass----- Bottlebrush squirreltail----- Narrowleaf goldenweed----- Rock buckwheat----- Bitterroot-----	30 20 10 5 5 5 5 5 5 2
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Big sagebrush----- Buckwheat-----	60 10 5 5 5 5
10: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass----- Stiff sagebrush----- Thymeleaf buckwheat----- Hood's phlox----- Hooker's balsamroot----- Bluebunch wheatgrass----- Bottlebrush squirreltail----- Narrowleaf goldenweed----- Rock buckwheat----- Bitterroot-----	30 20 10 5 5 5 5 5 2
Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass----- Stiff sagebrush----- Sandberg bluegrass----- Rock buckwheat----- Hood's phlox----- Hooker's balsamroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat-----	35 20 15 10 5 5 5 5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
11: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Whiskeydick-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
12: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
12: Whiskeydick-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
Wax currant-----	2					
13: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Windry-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5
14: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
14: Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Grinrod-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
15: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
15: Grinrod-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
16: Argids-----	Sands 6-9 Pz	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Antelope bitterbrush-----	15
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
17: Argids-----	Sandy 6-9 Pz	900	500	400	Bluebunch wheatgrass-----	40
					Wyoming big sagebrush-----	10
					Columbia Milkvetch-----	5
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Desert yellow fleabane-----	5
					Rock buckwheat-----	5
					Spiny hopsage-----	5
					Woollypod milkvetch-----	5
18: Argixerolls-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
18: Durixerolls-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
19: Argixerolls-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Durixerolls-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
20: Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		
21: Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
22: Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
23: Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
23: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
24: Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland
		Favorable year	Normal year	Unfavorable year		composition
		Lb/acre	Lb/acre	Lb/acre		Pct
24: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
25: Blint-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
26: Blint-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
27: Blint-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
27: Windry-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5
28: Brehm-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
29: Brehm-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Gorskel-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
29: Gorst-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
30: Caliralls-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
31: Caliralls-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
32: Caliralls-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
33: Caliralls-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
34: Caliralls-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
35: Camaspatch-----	Clayey 9-15 Pz	400	300	200	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	15
					Rock buckwheat-----	8
					Hood's phlox-----	5
					Narrowleaf goldenweed-----	5
					Threetip sagebrush-----	5
					Balsamroot-----	4
					Hooker's balsamroot-----	2
					Lupine-----	2
					Thymeleaf buckwheat-----	2
36: Camaspatch-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
37: Camaspatch-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
38: Camaspatch-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
39: Camaspatch-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Colockum-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland
		Favorable year	Normal year	Unfavorable year		composition
		Lb/acre	Lb/acre	Lb/acre		Pct
40: Camaspatch-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5
Tanksel-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
41: Camaspatch-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5
Tanksel-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Lainand-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
42: Camaspatch-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Whiskeydick-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
43: Camaspatch-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Whiskeydick-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
44: Camaspach-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Whiskeydick-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
45: Camaspach-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Whiskeydick-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
46: Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
47: Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
48: Colockum-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
49: Colockum-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
50: Colockum-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
51: Colockum-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Tronsen-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
52: Disage-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
53: Disage-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
54: Disage-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
55: Disage-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
55: Clenage-----	Dry Loamy 6-9 Pz	500	400	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	15
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Narrowleaf goldenweed-----	2
					Spiny hopsage-----	2
56: Drino-----	Cool Stony 6-9 Pz	750	600	500	Bluebunch wheatgrass-----	50
					Cusick's bluegrass-----	10
					Idaho fescue-----	5
					Sandberg bluegrass-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Longleaf phlox-----	3
					Lupine-----	3
					Hood's phlox-----	2
					Fleabane-----	2
57: Drino-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
58: Drino-----	Cool Stony 6-9 Pz	750	600	500	Bluebunch wheatgrass-----	50
					Cusick's bluegrass-----	10
					Idaho fescue-----	5
					Sandberg bluegrass-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Longleaf phlox-----	3
					Lupine-----	3
					Hood's phlox-----	2
					Fleabane-----	2
Disage-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Kiona-----	Cool Stony 9-15 Pz	1,000	800	500	Idaho fescue-----	60
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Lupine-----	3
					Prairie Junegrass-----	2
59: Drino-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Rubble land.						
Rock outcrop.						

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
60: Drino-----	Cool Stony 6-9 Pz	750	600	500	Bluebunch wheatgrass-----	50
					Cusick's bluegrass-----	10
					Idaho fescue-----	5
					Sandberg bluegrass-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Longleaf phlox-----	3
					Lupine-----	3
					Hood's phlox-----	2
					Fleabane-----	2
Rubble land.						
Rock outcrop.						
61: Drino-----	Cool Stony 6-9 Pz	750	600	500	Bluebunch wheatgrass-----	50
					Cusick's bluegrass-----	10
					Idaho fescue-----	5
					Sandberg bluegrass-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Longleaf phlox-----	3
					Lupine-----	3
					Hood's phlox-----	2
					Fleabane-----	2
Sohappy-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
61: Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
62: Drino-----	Cool Stony 6-9 Pz	750	600	500	Bluebunch wheatgrass-----	50
					Cusick's bluegrass-----	10
					Idaho fescue-----	5
					Sandberg bluegrass-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Longleaf phlox-----	3
					Lupine-----	3
					Hood's phlox-----	2
					Fleabane-----	2
Sohappy-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
62: Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
63: Drysel-----	Stony 6-9 Pz	550	450	350	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Lupine-----	3
					Needleandthread-----	3
					Hood's phlox-----	2
					Fleabane-----	2
64: Drysel-----	Stony 6-9 Pz	550	450	350	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Lupine-----	3
					Needleandthread-----	3
					Hood's phlox-----	2
					Fleabane-----	2
65: Durtash-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
66: Esquatzel-----	Loamy Bottom 6-9 Pz	2,500	2,000	1,000	Basin wildrye-----	60
					Bluebunch wheatgrass-----	30
					Antelope bitterbrush-----	10
					Sandberg bluegrass-----	5
					Spiny hopsage-----	5
					Threetip sagebrush-----	5
67: Esquatzel-----	Loamy Bottom 6-9 Pz	2,500	2,000	1,000	Basin wildrye-----	60
					Bluebunch wheatgrass-----	30
					Antelope bitterbrush-----	10
					Sandberg bluegrass-----	5
					Spiny hopsage-----	5
					Threetip sagebrush-----	5
68: Esquatzel-----	Loamy Bottom 6-9 Pz	2,500	2,000	1,000	Basin wildrye-----	60
					Bluebunch wheatgrass-----	30
					Antelope bitterbrush-----	10
					Sandberg bluegrass-----	5
					Spiny hopsage-----	5
					Threetip sagebrush-----	5
Aquolls-----	Wet Alkali Meadow 6-9 Pz	4,000	3,000	2,500	Sedge-----	26
					Basin wildrye-----	18
					Inland saltgrass-----	17
					Tufted hairgrass-----	17
					Alkali cordgrass-----	5
					Cattail-----	5
					Rush-----	2
					Reed canarygrass-----	2
					Rose-----	2
					Willow-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
68: Weirman-----	Stony Bottom 6-9 Pz	550	450	350	Basin wildrye-----	20
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	10
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Biscuitroot-----	5
					Bottlebrush squirreltail-----	5
					Buckwheat-----	5
					Needleandthread-----	5
					Gray rabbitbrush-----	2
					Antelope bitterbrush-----	1
69: Esquatzel-----	Loamy Bottom 6-9 Pz	2,500	2,000	1,000	Basin wildrye-----	60
					Bluebunch wheatgrass-----	30
					Antelope bitterbrush-----	10
					Sandberg bluegrass-----	5
					Spiny hopsage-----	5
					Threetip sagebrush-----	5
Weirman fine sandy loam	Stony Bottom 6-9 Pz	550	450	350	Basin wildrye-----	20
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	10
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Biscuitroot-----	5
					Bottlebrush squirreltail-----	5
					Buckwheat-----	5
					Needleandthread-----	5
					Gray rabbitbrush-----	2
					Antelope bitterbrush-----	1

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
69: Weirman very cobbly sandy loam-----	Stony Bottom 6-9 Pz	550	450	350	Basin wildrye-----	20
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	10
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Biscuitroot-----	5
					Bottlebrush squirreltail-----	5
					Buckwheat-----	5
					Needleandthread-----	5
					Gray rabbitbrush-----	2
					Antelope bitterbrush-----	1
70: Finley sandy loam-----	Sandy 6-9 Pz	900	500	400	Bluebunch wheatgrass-----	45
					Needleandthread-----	20
					Thurber needlegrass-----	10
					Carey's balsamroot-----	5
					Sandberg bluegrass-----	5
					Wyoming big sagebrush-----	5
					Slenderbush eriogonum-----	5
					Miscellaneous shrubs-----	3
					Miscellaneous perennial forbs--	1
Finley cobbly sandy loam-----	Sandy 6-9 Pz	900	500	400	Bluebunch wheatgrass-----	45
					Needleandthread-----	20
					Thurber needlegrass-----	10
					Carey's balsamroot-----	5
					Sandberg bluegrass-----	5
					Wyoming big sagebrush-----	5
					Slenderbush eriogonum-----	5
					Miscellaneous shrubs-----	3
					Miscellaneous perennial forbs--	1
71: Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
71: Drino-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Nevo-----	Very Shallow Desert Pavement 6-9 Pz	200	100	50	Stiff sagebrush-----	45
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Thurber needlegrass-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Bottlebrush squirreltail-----	2
72: Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Drino-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
72: Nevo-----	Very Shallow Desert Pavement 6-9 Pz	200	100	50	Stiff sagebrush----- Sandberg bluegrass----- Rock buckwheat----- Hood's phlox----- Thurber needlegrass----- Biscuitroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat----- Bottlebrush squirreltail-----	45 15 10 5 5 5 5 5 2
73: Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass----- Sandberg bluegrass----- Rock buckwheat----- Stiff sagebrush----- Hood's phlox----- Biscuitroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat----- Thurber needlegrass----- Bottlebrush squirreltail-----	40 15 10 10 5 5 5 5 3 2
Drino-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass----- Sandberg bluegrass----- Rock buckwheat----- Stiff sagebrush----- Hood's phlox----- Biscuitroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat----- Thurber needlegrass----- Bottlebrush squirreltail-----	40 15 10 10 5 5 5 5 3 2
Sohappy-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
74:						
Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Nevo-----	Very Shallow 6-9 Pz	300	200	100	Sandberg bluegrass-----	40
					Stiff sagebrush-----	15
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Rock outcrop.						
75:						
Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Rubble land.						
Rock outcrop.						

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
76:						
Frint-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Gidwin-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5
Rubble land.						
77:						
Frint-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Hogranch-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
78:						
Frint-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Hogranch-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Gidwin-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5
79:						
Gorskel silt loam-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
Gorskel cobbly loam-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
80: Gorst-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
81: Grinrod-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
82: Grinrod-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland
		Favorable year	Normal year	Unfavorable year		composition
		Lb/acre	Lb/acre	Lb/acre		Pct
83: Haploxerolls-----	Alkali Bottom 6-9 Pz	1,800	1,500	1,000	Basin wildrye-----	40
					Inland saltgrass-----	20
					Black greasewood-----	15
					Alkali cordgrass-----	10
					Sandberg bluegrass-----	5
					Threadleaf sedge-----	5
					Cinquefoil-----	2
					Spiny hopsage-----	1
Orthents-----	Stony Bottom 6-9 Pz	550	450	350	Basin wildrye-----	20
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	10
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Biscuitroot-----	5
					Bottlebrush squirreltail-----	5
					Buckwheat-----	5
					Needleandthread-----	5
					Gray rabbitbrush-----	2
					Antelope bitterbrush-----	1
Aquolls-----	Wet Alkali Meadow 6-9 Pz	4,000	3,000	2,500	Sedge-----	26
					Basin wildrye-----	18
					Inland saltgrass-----	17
					Tufted hairgrass-----	17
					Alkali cordgrass-----	5
					Cattail-----	5
					Rush-----	2
					Reed canarygrass-----	2
					Rose-----	2
					Willow-----	2
84: Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
85: Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
86: Kiona-----	Cool Stony 9-15 Pz	1,000	800	500	Idaho fescue-----	60
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Lupine-----	3
					Prairie Junegrass-----	2
87: Kiona-----	Stony 6-9 Pz	550	450	350	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Lupine-----	3
					Needleandthread-----	3
					Hood's phlox-----	2
					Fleabane-----	2
Rubble land.						
88: Lainand-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
88: Tankssel-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
89: Laric-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
90: Laric-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
91: Levnik-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Nosser-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Nevo-----	Very Shallow 6-9 Pz	300	200	100	Sandberg bluegrass-----	40
					Stiff sagebrush-----	15
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
92: Malaga-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
93: Malaga-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
94: Manastash-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
95: Manastash-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
96: Manastash-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Durtash-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
97:						
Manastash-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Durtash-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
98:						
Manastash-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Meloza-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
98: Durtash-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
99: Manastash-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Selah-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Gorst-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
100: Marlic-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Laric-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
101: Meloza-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
101: Roza-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
102: Meloza-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Roza-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
103: Meloza-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
103: Roza-----	Clayey 9-15 Pz	400	300	200	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	15
					Rock buckwheat-----	8
					Hood's phlox-----	5
					Narrowleaf goldenweed-----	5
					Threetip sagebrush-----	5
					Balsamroot-----	4
					Hooker's balsamroot-----	2
					Lupine-----	2
					Thymeleaf buckwheat-----	2
104: Nack-----	Alkali Bottom 9-15 Pz	3,500	2,500	2,000	Basin wildrye-----	40
					Inland saltgrass-----	20
					Black greasewood-----	15
					Alkali cordgrass-----	10
					Sandberg bluegrass-----	5
					Threadleaf sedge-----	5
					Cinquefoil-----	2
					Rose-----	1
Opnish-----	Alkali Bottom 9-15 Pz	3,500	2,500	2,000	Basin wildrye-----	40
					Inland saltgrass-----	20
					Black greasewood-----	15
					Alkali cordgrass-----	10
					Sandberg bluegrass-----	5
					Threadleaf sedge-----	5
					Cinquefoil-----	2
					Rose-----	1
105: Neppel-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
105: Scoon-----	Stony 6-9 Pz	550	450	350	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Lupine-----	3
					Needleandthread-----	3
					Hood's phlox-----	2
					Fleabane-----	2
106: Nevo-----	Very Shallow Desert Pavement 6-9 Pz	200	100	50	Stiff sagebrush-----	45
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Thurber needlegrass-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Bottlebrush squirreltail-----	2
107: Nevo-----	Very Shallow 6-9 Pz	300	200	100	Sandberg bluegrass-----	40
					Stiff sagebrush-----	15
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
108: Nevo very cobbly loam---	Very Shallow 6-9 Pz	300	200	100	Sandberg bluegrass-----	40
					Stiff sagebrush-----	15
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Nevo extremely gravelly sandy loam-----	Very Shallow Desert Pavement 6-9 Pz	200	100	50	Stiff sagebrush-----	45
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Thurber needlegrass-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Bottlebrush squirreltail-----	2
109: Nevo very cobbly loam---	Very Shallow 6-9 Pz	300	200	100	Sandberg bluegrass-----	40
					Stiff sagebrush-----	15
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Nevo extremely gravelly sandy loam-----	Very Shallow Desert Pavement 6-9 Pz	200	100	50	Stiff sagebrush-----	45
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Thurber needlegrass-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
110: Niben-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
111: Norod-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
111: Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
112: Norod-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
113: Norod-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
114: Norod-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
115: Norod-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
115: Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
116: Norod-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
116: Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
117: Norod-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Rubble land.						
118: Nosser-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Levnik-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
119: Nosser-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
Thurber needlegrass-----					5	
Big sagebrush-----					5	
Bottlebrush squirreltail-----					3	
Fleabane-----					3	
Gray rabbitbrush-----					3	
Needleandthread-----					3	
Balsamroot-----					2	
Buckwheat-----					2	
Lupine-----					2	
Spiny hopsage-----	2					
Levnik-----	Very Shallow 6-9 Pz	300	200	100	Sandberg bluegrass-----	40
					Stiff sagebrush-----	15
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
120: Palerf-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
120: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
121: Palerf-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
122: Palixerolls-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
122: Patron-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
123: Patron-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Camaspatch-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5
124: Prosser-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
125: Prosser-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Nevo-----	Very Shallow 6-9 Pz	300	200	100	Sandberg bluegrass-----	40
					Stiff sagebrush-----	15
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
126: Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
127: Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
128: Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Horseflat-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
129: Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
129: Palerf-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
130: Ralock-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
Palerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
131: Rock outcrop.						
132: Rollinger-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
133: Rollinger-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
134: Rollinger-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
135: Rollinger-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
136: Rollinger-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
137: Rubble land.  Rock outcrop.						
138: Rubble land.  Rock outcrop.						
Kiona-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Big sagebrush----- Buckwheat-----	60 10 5 5 5 5
139: Sagehill-----	Sandy 6-9 Pz	900	500	400	Bluebunch wheatgrass----- Needleandthread----- Wyoming big sagebrush----- Thurber needlegrass----- Buckwheat----- Sandberg bluegrass----- Carey's balsamroot----- Gray rabbitbrush----- Phlox----- Purple sage----- Spiny hopsage-----	52 15 10 5 5 3 2 2 2 2 2
Burbank-----	Sands 6-9 Pz	800	600	500	Indian ricegrass----- Needleandthread----- Antelope bitterbrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 15 10 5 5 5 5 5 5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
139: Malaga-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
140: Scoon-----	Stony 6-9 Pz	550	450	350	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Lupine-----	3
					Needleandthread-----	3
					Hood's phlox-----	2
					Fleabane-----	2
141: Selah-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
142: Selah-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
143: Selah-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
144: Selah-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
145: Selah-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
146: Sohappy-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
147: Sohappy-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
148: Sohappy-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
148: Fortyday-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
149: Starbuck-----	Stony 6-9 Pz	550	450	350	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Lupine-----	3
					Needleandthread-----	3
					Hood's phlox-----	2
					Fleabane-----	2
Rock outcrop.						
150: Tanksel-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
150: Patron-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Camaspatch-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5
151: Tanksel-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Patron-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Camaspatch-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Sandberg bluegrass-----	10
					Rock buckwheat-----	5
					Stiff sagebrush-----	5
					Threetip sagebrush-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		
152: Tanksel-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Wockum-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
153: Tanksel-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Wockum-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
154: Tanksele-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
Wockum-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
155: Terlan-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
156: Terlan-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
157: Terlan-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
157:						
Durtash-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
Selah-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
158:						
Terlan-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
Durtash-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
158: Selah-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
159: Timmerman sandy loam---	Sandy 6-9 Pz	900	500	400	Bluebunch wheatgrass-----	40
					Needleandthread-----	35
					Indian ricegrass-----	5
					Sandberg bluegrass-----	5
					Wyoming big sagebrush-----	5
					Slenderbush eriogonum-----	5
					Miscellaneous perennial forbs--	2
					Miscellaneous perennial grasses	2
					Carey's balsamroot-----	1
Timmerman loamy sand---	Sands 6-9 Pz	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Antelope bitterbrush-----	15
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
160: Tronsen-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
161: Tronsen-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
162: Vantage-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
163: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
164: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
165: Vantage-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
166: Vantage-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
167: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
167: Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
168: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Argabak-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
169: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass----- Stiff sagebrush----- Sandberg bluegrass----- Rock buckwheat----- Hood's phlox----- Hooker's balsamroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat-----	35 20 15 10 5 5 5 5
Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Big sagebrush----- Buckwheat-----	60 10 5 5 5 5
170: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass----- Stiff sagebrush----- Sandberg bluegrass----- Rock buckwheat----- Hood's phlox----- Hooker's balsamroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat-----	35 20 15 10 5 5 5 5
Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Big sagebrush----- Buckwheat-----	60 10 5 5 5 5
171: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass----- Stiff sagebrush----- Sandberg bluegrass----- Rock buckwheat----- Hood's phlox----- Hooker's balsamroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat-----	35 20 15 10 5 5 5 5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
171: Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Big sagebrush----- Buckwheat-----	60 10 5 5 5 5
172: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass----- Stiff sagebrush----- Sandberg bluegrass----- Rock buckwheat----- Hood's phlox----- Hooker's balsamroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat-----	35 20 15 10 5 5 5 5
Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Big sagebrush----- Buckwheat-----	60 10 5 5 5 5
Rubble land.						
173: Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass----- Stiff sagebrush----- Sandberg bluegrass----- Rock buckwheat----- Hood's phlox----- Hooker's balsamroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat-----	35 20 15 10 5 5 5 5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
173: Niben-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Clerf-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
174: Vantage-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Vantage, thin-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
175:						
Vantage-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Vantage, thin-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
176:						
Vantage-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
Vantage, thin-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
177: Wanapum-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass----- Sandberg bluegrass----- Rock buckwheat----- Stiff sagebrush----- Hood's phlox----- Biscuitroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat----- Thurber needlegrass----- Bottlebrush squirreltail-----	40 15 10 10 5 5 5 5 3 2
178: Wanapum loam-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass----- Sandberg bluegrass----- Rock buckwheat----- Stiff sagebrush----- Hood's phlox----- Biscuitroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat----- Thurber needlegrass----- Bottlebrush squirreltail-----	40 15 10 10 5 5 5 5 3 2
Wanapum cobbly loam-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass----- Sandberg bluegrass----- Rock buckwheat----- Stiff sagebrush----- Hood's phlox----- Biscuitroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat----- Thurber needlegrass----- Bottlebrush squirreltail-----	40 15 10 10 5 5 5 5 3 2
179: Wanapum loam-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass----- Sandberg bluegrass----- Rock buckwheat----- Stiff sagebrush----- Hood's phlox----- Biscuitroot----- Narrowleaf goldenweed----- Thymeleaf buckwheat----- Thurber needlegrass----- Bottlebrush squirreltail-----	40 15 10 10 5 5 5 5 3 2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
179: Wanapum cobbly loam-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
180: Whiskeydick-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
181: Whiskeydick-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
182: Whiskeydick-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
182: Tronsen-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
Camaspatch-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
183: Whiskeydick-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
Tronsen-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
183: Camaspatch-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
184: Whiskeydick-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
Tronsen-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
Camaspatch-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
185: Winchester-----	Sands 6-9 Pz	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Antelope bitterbrush-----	15
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
Sagehill-----	Sandy 6-9 Pz	900	500	400	Bluebunch wheatgrass-----	52
					Needleandthread-----	15
					Wyoming big sagebrush-----	10
					Thurber needlegrass-----	5
					Buckwheat-----	5
					Sandberg bluegrass-----	3
					Carey's balsamroot-----	2
					Gray rabbitbrush-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
Burbank-----	Sands 6-9 Pz	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Antelope bitterbrush-----	15
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
186: Wipple-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
187: Wipple-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
188: Wipple-----	Stony 9-15 Pz	750	600	300	Bluebunch wheatgrass-----	55
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Lupine-----	3
					Wax currant-----	2
189: Wockum-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2
190: Wockum-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue-----	50
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Buckwheat-----	2
					Fleabane-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
191: Wockum-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue----- Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Threetip sagebrush----- Lupine----- Buckwheat----- Fleabane-----	50 20 5 5 5 3 2 2
Blint-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue----- Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Threetip sagebrush----- Lupine----- Buckwheat----- Fleabane-----	50 20 5 5 5 3 2 2
192: Wockum-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue----- Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Threetip sagebrush----- Lupine----- Buckwheat----- Fleabane-----	50 20 5 5 5 3 2 2
Blint-----	Cool Loamy 9-15 Pz	1,200	1,000	800	Idaho fescue----- Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Threetip sagebrush----- Lupine----- Buckwheat----- Fleabane-----	50 20 5 5 5 3 2 2
Windry-----	Cool Clayey 9-15 Pz	600	500	450	Idaho fescue----- Bluebunch wheatgrass----- Sandberg bluegrass----- Rock buckwheat----- Stiff sagebrush----- Threetip sagebrush-----	50 20 10 5 5 5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
193: Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
194: Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
195: Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
196:						
Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Benwy-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Laric-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		Pct
		Lb/acre	Lb/acre	Lb/acre		Pct
197:						
Zen-----	Dry Loamy 9-15 Pz	900	750	600	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Big sagebrush-----	5
					Thurber needlegrass-----	3
					Arrowleaf balsamroot-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Milkvetch-----	2
Marlic-----	Dry Clayey 9-15 Pz	450	350	200	Bluebunch wheatgrass-----	35
					Stiff sagebrush-----	20
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
Laric-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2
198:						
Torrifluents, very cobbly.						
Torrifluents, gravelly.						

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
199:						
Haploxerolls sandy loam	Alkali Bottom 6-9 Pz	1,800	1,500	1,000	Basin wildrye-----	40
					Inland saltgrass-----	20
					Black greasewood-----	15
					Alkali cordgrass-----	10
					Sandberg bluegrass-----	5
					Threadleaf sedge-----	5
					Cinquefoil-----	2
					Spiny hopsage-----	1
Haploxerolls silt loam--	Alkali Bottom 6-9 Pz	1,800	1,500	1,000	Basin wildrye-----	40
					Inland saltgrass-----	20
					Black greasewood-----	15
					Alkali cordgrass-----	10
					Sandberg bluegrass-----	5
					Threadleaf sedge-----	5
					Cinquefoil-----	2
					Spiny hopsage-----	1
200:						
Malaga, cobbly-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Malaga, stony-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
201: Semal, cobbly-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Semal, very cobbly-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
Semal, stony-----	Clayey 6-9 Pz	450	350	250	Bluebunch wheatgrass-----	40
					Sandberg bluegrass-----	15
					Rock buckwheat-----	10
					Stiff sagebrush-----	10
					Hood's phlox-----	5
					Biscuitroot-----	5
					Narrowleaf goldenweed-----	5
					Thymeleaf buckwheat-----	5
					Thurber needlegrass-----	3
					Bottlebrush squirreltail-----	2
202: Water.						
203: Pits.						
204: Dam.						
205: Arents.						

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
206: Burbank-----	Sands 6-9 Pz	800	600	500	Indian ricegrass----- Needleandthread----- Antelope bitterbrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 15 10 5 5 5 5 5
207: Rock Creek-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass----- Stiff sagebrush----- Thymeleaf buckwheat----- Hood's phlox----- Hooker's balsamroot----- Bluebunch wheatgrass----- Bottlebrush squirreltail----- Narrowleaf goldenweed----- Rock buckwheat----- Bitterroot-----	30 20 10 5 5 5 5 5 5 2
208: Kiona-----	Loamy 6-9 Pz	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
209: Lickskillet-----	Dry Stony 9-15 Pz	550	450	300	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Big sagebrush----- Buckwheat-----	60 10 5 5 5 5

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
210: Starbuck-----	Stony 6-9 Pz	550	450	350	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Lupine-----	3
					Needleandthread-----	3
					Hood's phlox-----	2
					Fleabane-----	2
Rock outcrop.						
211: Starbuck-----	Stony 6-9 Pz	550	450	350	Bluebunch wheatgrass-----	50
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Arrowleaf balsamroot-----	5
					Big sagebrush-----	5
					Rock buckwheat-----	5
					Lupine-----	3
					Needleandthread-----	3
					Hood's phlox-----	2
					Fleabane-----	2
Rock outcrop.						
212: Willis-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2

Table 5.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
213: Willis-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
214: Willis-----	Loamy 9-15 Pz	1,200	900	700	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Threetip sagebrush-----	5
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Lupine-----	2
					Milkvetch-----	2
215: Bakeoven-----	Very Shallow 9-15 Pz	250	200	150	Sandberg bluegrass-----	30
					Stiff sagebrush-----	20
					Thymeleaf buckwheat-----	10
					Hood's phlox-----	5
					Hooker's balsamroot-----	5
					Bluebunch wheatgrass-----	5
					Bottlebrush squirreltail-----	5
					Narrowleaf goldenweed-----	5
					Rock buckwheat-----	5
					Bitterroot-----	2

Table 6.--Windbreaks and Environmental Plantings

(Only the soils suited to windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
18: Argixerolls-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine.	Black locust-----	---
Durixerolls.					
20: Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, green ash.	Austrian pine, Siberian elm, ponderosa pine.	Scotch pine, black locust.	---
21: Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
22: Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
23: Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Vantage.					
Argabak.					
24: Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
24: Vantage.  Argabak.					
25: Blint-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---
26: Blint-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---
27: Blint-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---
Windry.					
30: Caliralls-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
31: Caliralls-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
32: Caliralls-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Clerf.					

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
33: Caliralls-----  Clerf.	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
34: Caliralls-----  Horseflat.	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
40: Camaspatch.  Tanksel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---
41: Camaspatch.  Tanksel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---
Lainand-----	Siberian peashrub, lilac.	Rocky Mountain juniper, Russian olive.	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust-----	---
48: Colockum-----	Peking cotoneaster, Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
49: Colockum-----	Peking cotoneaster, Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
51: Colockum-----	Peking cotoneaster, Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
Tronsen.					
61: Drino.					
Sohappy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Fortyday.					
62: Drino.					
Sohappy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Fortyday.					
66: Esquatzel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive.	Ponderosa pine-----	Scotch pine, black locust.	---
67: Esquatzel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive.	Ponderosa pine-----	Scotch pine, black locust.	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
68: Esquatzel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive.	Ponderosa pine-----	Scotch pine, black locust.	---
Aquolls-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, eastern redcedar, green ash.	Austrian pine, ponderosa pine.	Black locust-----	---
Weirman.					
69: Esquatzel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive.	Ponderosa pine-----	Scotch pine, black locust.	---
Weirman fine sandy loam					
Weirman very cobbly sandy loam.					
76: Frint-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---
Gidwin.					
Rubble land.					
77: Frint-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---
Hogbranch-----	Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive.	Austrian pine, Siberian peashrub, green ash, ponderosa pine, Scotch pine.	Black locust-----	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
78: Frint-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---
Hogbranch-----	Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive.	Austrian pine, Siberian peashrub, green ash, ponderosa pine, Scotch pine.	Black locust-----	---
Gidwin.					
83: Haploxerolls.					
Orthents.					
Aquolls-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, eastern redcedar, green ash.	Austrian pine, ponderosa pine.	Black locust-----	---
88: Lainand-----	Siberian peashrub, lilac.	Rocky Mountain juniper, Russian olive.	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust-----	---
Tanksel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---
104: Nack-----	Peking cotoneaster	Tatarian honeysuckle, Siberian peashrub.	Rocky Mountain juniper.	Eastern arborvitae, Russian olive.	Golden willow, Scotch pine, ponderosa pine, black locust, green ash, Lombardy poplar.

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
104: Opnish-----	Peking cotoneaster	Tatarian honeysuckle, Siberian peashrub.	Rocky Mountain juniper.	Eastern arborvitae, Russian olive.	Golden willow, Scotch pine, ponderosa pine, black locust, green ash, Lombardy poplar.
110: Niben-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Vantage.					
Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, green ash.	Austrian pine, Siberian elm, ponderosa pine.	Scotch pine, black locust.	---
114: Norod.					
Ralock-----	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
Horseflat.					
115: Norod.					
Ralock-----	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
Horseflat.					
116: Norod.					
Ralock-----	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
Horseflat.					

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
120: Palerf.					
Ralock-----	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
Vantage.					
122: Palexerolls-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---
Patron-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---
123: Patron-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive.	Siberian elm, green ash, Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Camaspach.					
126: Ralock-----	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
127: Ralock-----	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
128: Ralock-----	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
Horseflat.					

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
129: Ralock-----  Palerf.	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
130: Ralock-----  Palerf.	Tatarian honeysuckle, skunkbush sumac.	Siberian peashrub, lilac, Rocky Mountain juniper.	Russian olive, green ash, Austrian pine.	Scotch pine, ponderosa pine.	Black locust.
132: Rollinger-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
133: Rollinger-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
134: Rollinger-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
135: Rollinger-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
136: Rollinger-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
147: Sohappy-----  Fortyday.	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
148: Sohappy-----  Fortyday.	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
150: Tanksel-----  Patron-----  Camaspatch.	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---
151: Tanksel-----  Patron-----  Camaspatch.	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---
152: Tanksel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
152: Wockum-----	European privet-----	Siberian peashrub, Tatarian honeysuckle, lilac, Rocky Mountain juniper.	Russian olive-----	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust.
153: Tanksel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---
Wockum-----	European privet-----	Siberian peashrub, Tatarian honeysuckle, lilac, Rocky Mountain juniper.	Russian olive-----	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust.
154: Tanksel-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine, Scotch pine.	Black locust-----	---
Wockum-----	European privet-----	Siberian peashrub, Tatarian honeysuckle, lilac, Rocky Mountain juniper.	Russian olive-----	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust.
167: Vantage.					
Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Argabak.					
168: Vantage.					

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
168: Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Argabak.					
173: Vantage.					
Niben-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Clerf.					
189: Wockum-----	European privet-----	Siberian peashrub, Tatarian honeysuckle, lilac, Rocky Mountain juniper.	Russian olive-----	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust.
190: Wockum-----	European privet-----	Siberian peashrub, Tatarian honeysuckle, lilac, Rocky Mountain juniper.	Russian olive-----	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust.
191: Wockum-----	European privet-----	Siberian peashrub, Tatarian honeysuckle, lilac, Rocky Mountain juniper.	Russian olive-----	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust.
Blint-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
192: Wockum-----	European privet-----	Siberian peashrub, Tatarian honeysuckle, lilac, Rocky Mountain juniper.	Russian olive-----	Austrian pine, green ash, ponderosa pine, Scotch pine.	Black locust.
Blint-----	Siberian peashrub, Tatarian honeysuckle, lilac, skunkbush sumac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, Scotch pine, ponderosa pine, black locust.	---	---
Windry.					
196: Zen.					
Benwy-----	Nanking cherry, Siberian peashrub, Tatarian honeysuckle, lilac.	Rocky Mountain juniper, Russian olive, Siberian elm, green ash.	Austrian pine, ponderosa pine.	Scotch pine, black locust.	---
Laric.					
200: Malaga, cobbly-----	Austrian pine, Peking cotoneaster.	Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Russian olive-----	Golden willow, ponderosa pine, black locust, green ash, Lombardy poplar.
Malaga, stony-----	Austrian pine, Peking cotoneaster.	Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Russian olive-----	Golden willow, ponderosa pine, black locust, green ash, Lombardy poplar.
201: Semal, cobbly-----	Peking cotoneaster	Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Russian olive-----	Golden willow, Austrian pine, ponderosa pine, black locust, green ash, Lombardy poplar.

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
201: Semal, very cobbly-----	Peking cotoneaster	Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Russian olive-----	Golden willow, Austrian pine, ponderosa pine, black locust, green ash, Lombardy poplar.
Semal, stony-----	Peking cotoneaster	Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Russian olive-----	Golden willow, Austrian pine, ponderosa pine, black locust, green ash, Lombardy poplar.
206: Burbank-----	Peking cotoneaster	Tatarian honeysuckle, Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Eastern arborvitae, Russian olive.	Golden willow, Austrian pine, green ash, Lombardy poplar.
212: Willis-----	Peking cotoneaster	Tatarian honeysuckle, Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Eastern arborvitae, Russian olive.	Golden willow, Austrian pine, green ash, Lombardy poplar.
213: Willis-----	Peking cotoneaster	Tatarian honeysuckle, Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Eastern arborvitae, Russian olive.	Golden willow, Austrian pine, green ash, Lombardy poplar.
214: Willis-----	Peking cotoneaster	Tatarian honeysuckle, Siberian peashrub, lilac.	Rocky Mountain juniper, blue spruce.	Eastern arborvitae, Russian olive.	Golden willow, Austrian pine, green ash, Lombardy poplar.

Table 7.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
2: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
3: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
4: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
5: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
6: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
7: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Camaspach-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: depth to rock.
8: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Horseflat-----	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: large stones, small stones.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
9: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Horseflat-----	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones,	Severe: large stones, small stones.
10: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
11: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Whiskeydick-----	Severe: large stones,	Severe: large stones,	Severe: large stones, slope, small stones.	Moderate: dusty, large stones,	Severe: large stones,
12: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Whiskeydick-----	Severe: large stones.	Severe: large stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones,	Severe: large stones.
13: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Windry-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
14: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Zen-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: depth to rock.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
14: Grinrod-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
15: Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
Zen-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: depth to rock.
Grinrod-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
16: Argids-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: slope, small stones, droughty.
17: Argids-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
18: Argixerolls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Durixerolls-----	Severe: cemented pan, slope, small stones.	Severe: cemented pan, slope, small stones.	Severe: cemented pan, slope, small stones.	Severe: slope.	Severe: cemented pan, slope, small stones.
19: Argixerolls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Durixerolls-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: slope.	Severe: cemented pan, slope.
20: Benwy-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Slight.
21: Benwy-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
22: Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
23: Benwy-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.
24: Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
Argabak-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: large stones, small stones, depth to rock.
25: Blint-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope.
26: Blint-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
27: Blint-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope.
Windry-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
28: Brehm-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan.
29: Brehm-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan, slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
29: Gorskel-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.
Gorst-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.
30: Caliralls-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
31: Caliralls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
32: Caliralls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Clerf-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope.
33: Caliralls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Clerf-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
34: Caliralls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
35: Camaspach-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: depth to rock.
36: Camaspach-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: slope, depth to rock.
37: Camaspach-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: depth to rock.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
38: Camaspatch-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: slope, depth to rock.
39: Camaspatch-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: slope, depth to rock.
Colockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
40: Camaspatch-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
Tanksel-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
41: Camaspatch-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
Tanksel-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Lainand-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
42: Camaspatch-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: depth to rock.
Whiskeydick-----	Severe: large stones,	Severe: large stones,	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: large stones.
43: Camaspatch-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: slope, depth to rock.
Whiskeydick-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
44: Camaspach-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
Whiskeydick-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
45: Camaspach-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
Whiskeydick-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
46: Clerf-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope.
47: Clerf-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
48: Colockum-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Slight.
49: Colockum-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
50: Colockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
51: Colockum-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Tronsen-----	Moderate: dusty, slope, small stones.	Moderate: dusty, slope, small stones.	Severe: slope, small stones.	Moderate: dusty.	Moderate: large stones, slope, small stones.
52: Disage-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: large stones, depth to rock.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
53: Disage-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, depth to rock.
54: Disage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
55: Disage-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, depth to rock.
Clenage-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
56: Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: slope.
57: Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: slope, small stones.
58: Drino-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
Disage-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope, depth to rock.
Kiona-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
59: Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
59: Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
60: Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
61: Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
62: Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
63: Drysel-----	Moderate: dusty.	Moderate: dusty.	Moderate: dusty, cemented pan, slope.	Severe: erodes easily.	Moderate: cemented pan.
64: Drysel-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan.
65: Durtash-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
66: Esquatzel-----	Severe: flooding.	Moderate: dusty.	Moderate: flooding.	Moderate: dusty.	Moderate: flooding.
67: Esquatzel-----	Severe: flooding.	Moderate: dusty.	Moderate: slope.	Moderate: dusty.	Slight.
68: Esquatzel-----	Severe: flooding.	Moderate: dusty.	Moderate: slope.	Moderate: dusty.	Slight.
Aquolls-----	Severe: flooding, wetness.	Severe: wetness.	Severe: large stones, small stones, wetness.	Severe: wetness.	Severe: flooding, wetness, droughty.
Weirman-----	Severe: flooding, large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, small stones.	Slight-----	Severe: small stones, droughty.
69: Esquatzel-----	Severe: flooding.	Moderate: dusty.	Slight-----	Moderate: dusty.	Slight.
Weirman fine sandy loam-----	Severe: flooding.	Slight-----	Moderate: flooding, small stones.	Slight-----	Moderate: flooding, droughty.
Weirman very cobbly sandy loam-----	Severe: flooding, large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, small stones.	Slight-----	Severe: small stones, droughty.
70: Finley sandy loam-----	Severe: flooding.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: droughty.
Finley cobbly sandy loam-----	Severe: flooding.	Moderate: large stones, slope.	Severe: slope, small stones.	Slight-----	Moderate: large stones, small stones, droughty.
71: Fortyday-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: slope, small stones, depth to rock.
Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: slope, small stones.
Nevo-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones.	Severe: slope, small stones, depth to rock.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
72: Fortyday-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones, depth to rock.
Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
Nevo-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones.	Severe: slope, small stones, depth to rock.
73: Fortyday-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones, depth to rock.
Drino-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
74: Fortyday-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones.	Slight-----	Severe: depth to rock.
Nevo-----	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones, depth to rock.	Slight-----	Severe: depth to rock.
Rock outcrop-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight-----	Severe: depth to rock.
75: Fortyday-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones, depth to rock.
Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
76: Frint-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
76: Gidwin-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.
77: Frint-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Hogranch-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
78: Frint-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Hogranch-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Gidwin-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
79: Gorskel silt loam-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.
Gorskel cobbly loam----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, large stones, slope.	Moderate: dusty.	Severe: cemented pan.
80: Gorst-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: erodes easily.	Severe: cemented pan.
81: Grinrod-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
82: Grinrod-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope, small stones.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
82: Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope, small stones.
83: Haploxerolls-----	Severe: flooding.	Moderate: dusty.	Moderate: dusty, slope.	Moderate: dusty.	Slight.
Orthents-----	Severe: flooding, large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, small stones.	Moderate: large stones, too sandy.	Severe: large stones, small stones, droughty.
Aquolls-----	Severe: flooding, wetness.	Severe: wetness.	Severe: large stones, small stones, wetness.	Severe: wetness.	Severe: flooding, wetness, droughty.
84: Horseflat-----	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: large stones, small stones.
85: Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
86: Kiona-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
87: Kiona-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.
88: Lainand-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Tanksel-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
89: Laric-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.	Severe: small stones, depth to rock.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
90: Laric-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.	Severe: small stones, depth to rock.
Zen-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
91: Levnik-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Slight-----	Severe: small stones, depth to rock.
Nosser-----	Moderate: percs slowly, slope, small stones.	Moderate: percs slowly, slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: slope, small stones, depth to rock.
Nevo-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.	Slight-----	Severe: depth to rock.
92: Malaga-----	Slight-----	Slight-----	Severe: slope, small stones.	Slight-----	Moderate: small stones, droughty.
93: Malaga-----	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: slope.	Slight-----	Moderate: slope, droughty.
94: Manastash-----	Moderate: dusty.	Moderate: dusty.	Moderate: dusty, cemented pan, slope.	Severe: erodes easily.	Moderate: cemented pan.
95: Manastash-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan.
96: Manastash-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan.
Durtash-----	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, small stones.	Moderate: dusty.	Severe: cemented pan.
97: Manastash-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Durtash-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: slope, small stones.	Moderate: dusty, slope.	Severe: cemented pan, slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
98:					
Manastash-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Meloza-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Durtash-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: slope, small stones.	Moderate: dusty, slope.	Severe: cemented pan, slope.
99:					
Manastash-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Selah-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Gorst-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan, slope.
100:					
Marlic-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Moderate: dusty.	Severe: depth to rock.
Zen-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
Laric-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.	Severe: small stones, depth to rock.
101:					
Meloza-----	Slight-----	Slight-----	Severe: slope.	Slight-----	Slight.
Roza-----	Moderate: too clayey.	Moderate: too clayey.	Severe: slope.	Moderate: too clayey.	Severe: too clayey.
102:					
Meloza-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
Roza-----	Moderate: slope, too clayey.	Moderate: slope, too clayey.	Severe: slope.	Moderate: too clayey.	Severe: too clayey.
103:					
Meloza-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Roza-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, too clayey.	Severe: slope, too clayey.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
104: Nack-----	Moderate: percs slowly, small stones, wetness.	Moderate: percs slowly, small stones, wetness.	Severe: small stones.	Moderate: wetness.	Moderate: large stones, small stones, wetness.
Opnish-----	Moderate: dusty, wetness.	Moderate: dusty, wetness.	Moderate: dusty, wetness.	Moderate: dusty.	Slight.
105: Neppel-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, droughty.
Scoon-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.
106: Nevo-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones.	Severe: small stones, depth to rock.
107: Nevo-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.	Slight-----	Severe: depth to rock.
Fortyday-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: depth to rock.
108: Nevo very cobbly loam--	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.	Slight-----	Severe: depth to rock.
Nevo extremely gravelly sandy loam-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones.	Severe: small stones, depth to rock.
109: Nevo very cobbly loam--	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, small stones, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.
Nevo extremely gravelly sandy loam-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones.	Severe: slope, small stones, depth to rock.
110: Niben-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: dusty, slope.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
110: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
111: Norod-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: slope.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
112: Norod-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope, small stones.
113: Norod-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope, small stones.
114: Norod-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: slope.
Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
115: Norod-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
115: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope, small stones.
116: Norod-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope, small stones.
117: Norod-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.
118: Nosser-----	Moderate: percs slowly, slope, small stones.	Moderate: percs slowly, slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: slope, small stones, depth to rock.
Levnik-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Slight-----	Severe: small stones, depth to rock.
119: Nosser-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Levnik-----	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope.	Severe: slope, small stones, depth to rock.
120: Palerf-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: dusty, slope.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
120: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
121: Palerf-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: dusty, slope.	Severe: slope.
Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
122: Palixerolls-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Patron-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: dusty, slope.	Severe: slope.
123: Patron-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Camaspatch-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: slope, depth to rock.
124: Prosser-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
125: Prosser-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
Nevo-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.	Slight-----	Severe: depth to rock.
126: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
127: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
128: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Horseflat-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope, small stones.
129: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Palerf-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: dusty, slope.	Severe: slope.
130: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Palerf-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
131: Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
132: Rollinger-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Slight.
133: Rollinger-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
134: Rollinger-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
135: Rollinger-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
136: Rollinger-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
137: Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
138: Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
Kiona-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, small stones.
139: Sagehill-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Burbank-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: large stones, small stones, droughty.
Malaga-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
140: Scoon-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.
141: Selah-----	Moderate: dusty.	Moderate: dusty.	Moderate: small stones.	Severe: erodes easily.	Moderate: cemented pan.
142: Selah-----	Moderate: dusty.	Moderate: dusty.	Moderate: cemented pan, slope, small stones.	Severe: erodes easily.	Moderate: cemented pan.
143: Selah-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan.
144: Selah-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan, slope.
145: Selah-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
146: Sohappy-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
146: Fortyday-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: depth to rock.
147: Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: slope, depth to rock.
148: Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
149: Starbuck-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.	Severe: depth to rock.
Rock outcrop-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight-----	Severe: depth to rock.
150: Tankssel-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: dusty, large stones, slope.	Severe: slope.
Patron-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: dusty, slope.	Severe: slope.
Camaspach-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: slope, depth to rock.
151: Tankssel-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Patron-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Camaspach-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
152: Tanksel-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: dusty, large stones, slope.	Severe: slope.
Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
153: Tanksel-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
154: Tanksel-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
155: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, small stones.	Moderate: dusty.	Severe: cemented pan.
156: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope, small stones.	Moderate: dusty.	Severe: cemented pan.
157: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: erodes easily.	Severe: cemented pan.
Durtash-----	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, small stones.	Moderate: dusty, large stones.	Severe: cemented pan, large stones.
Selah-----	Moderate: dusty.	Moderate: dusty.	Moderate: cemented pan, slope, small stones.	Severe: erodes easily.	Moderate: cemented pan.
158: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.
Durtash-----	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: cemented pan, large stones.
Selah-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan, slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
159: Timmerman sandy loam---	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
Timmerman loamy sand---	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
160: Tronsen-----	Moderate: dusty, slope, small stones.	Moderate: dusty, slope, small stones.	Severe: slope, small stones.	Moderate: dusty.	Moderate: large stones, slope, small stones.
161: Tronsen-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
162: Vantage-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones.	Severe: small stones.	Severe: small stones, depth to rock.
163: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
164: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
165: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
166: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
167: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
Benwy-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Argabak-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: large stones, small stones, depth to rock.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
168: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Argabak-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: large stones, small stones, depth to rock.
169: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
Clerf-----	Severe: large stones.	Severe: large stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: large stones.
170: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
Clerf-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope.
171: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
Clerf-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
172: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
Clerf-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
Rubble land-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones, droughty.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
173: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
Niben-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Moderate: dusty.	Moderate: slope.
Clerf-----	Severe: large stones.	Severe: large stones.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: large stones.
174: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
Vantage, thin-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
175: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
Vantage, thin-----	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty.	Severe: depth to rock.
176: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
Vantage, thin-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, depth to rock.
177: Wanapum-----	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, small stones.	Moderate: dusty, large stones.	Severe: cemented pan.
178: Wanapum loam-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.
Wanapum cobbly loam----	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: cemented pan.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
179: Wanapum loam-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: erodes easily.	Severe: cemented pan.
Wanapum cobbly loam----	Severe: cemented pan.	Severe: cemented pan.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones.	Severe: cemented pan.
180: Whiskeydick-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: slope.
181: Whiskeydick-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
182: Whiskeydick-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: slope.
Tronsen-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: dusty, slope.	Severe: slope.
Camaspatch-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: slope, depth to rock.
183: Whiskeydick-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Tronsen-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Camaspatch-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
184: Whiskeydick-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Tronsen-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
184: Camaspach-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
185: Winchester-----	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: slope.
Sagehill-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Burbank-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Moderate: large stones, slope, too sandy.	Severe: large stones, small stones, droughty.
186: Wipple-----	Moderate: large stones, slope, small stones.	Moderate: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: large stones.
187: Wipple-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: large stones, slope.
188: Wipple-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
189: Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
190: Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
191: Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Blint-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: dusty, large stones, slope.	Severe: large stones, slope.
192: Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Blint-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
192: Windry-----	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope, small stones.
193: Zen-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: depth to rock.
194: Zen-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
195: Zen-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
196: Zen-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
Benwy-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Laric-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.	Severe: small stones, depth to rock.
197: Zen-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
Marlic-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Moderate: dusty.	Severe: depth to rock.
Laric-----	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.	Severe: small stones, depth to rock.
198: Torrifluvents, very cobbley-----	Severe: flooding, large stones, small stones.	Severe: large stones, small stones.	Severe: flooding, large stones, small stones.	Moderate: dusty, flooding, large stones.	Severe: large stones, small stones, droughty.
Torrifluvents, gravelly-----	Severe: flooding.	Moderate: dusty, flooding, small stones.	Severe: flooding, small stones.	Moderate: dusty, flooding.	Severe: flooding, droughty.
199: Haploxerolls sandy loam-----	Severe: flooding.	Slight-----	Moderate: slope.	Slight-----	Slight.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
199: Haploxerolls silt loam	Severe: flooding.	Moderate: dusty.	Moderate: dusty, slope.	Moderate: dusty.	Slight.
200: Malaga, cobbly-----	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: large stones, slope.	Slight-----	Moderate: large stones, slope, droughty.
Malaga, stony-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: large stones, small stones, droughty.
201: Semal, cobbly-----	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: large stones, slope.	Slight-----	Severe: droughty.
Semal, very cobbly----	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones,	Severe: large stones, small stones, droughty.
Semal, stony-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Severe: droughty.
202: Water.					
203: Pits-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock. droughty.
204: Dam.					
205: Arents.					
206: Burbank-----	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, small stones, too sandy.	Moderate: too sandy.	Severe: droughty.
207: Rock Creek-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Moderate: dusty, slope.	Severe: slope, droughty.
208: Kiona-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

Table 7.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
209: Lickskillet-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope, depth to rock.
210: Starbuck-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.	Severe: slope, depth to rock.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock.
211: Starbuck-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily, slope.	Severe: slope, depth to rock.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
212: Willis-----	Moderate: dusty.	Moderate: dusty.	Moderate: cemented pan, slope.	Severe: erodes easily.	Moderate: cemented pan.
213: Willis-----	Moderate: dusty.	Moderate: dusty.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan.
214: Willis-----	Moderate: dusty, slope.	Moderate: dusty, slope.	Severe: slope.	Severe: erodes easily.	Moderate: cemented pan, slope.
215: Bakeoven-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: large stones, small stones, depth to rock.

Table 8.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
1: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
2: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
3: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
4: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
5: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
6: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
7: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
8: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
9: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
10: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
11: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
11: Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
12: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
13: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Windry-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
14: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Poor	Very poor.	Fair.
Grinrod-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
15: Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Poor	Very poor.	Fair.
Grinrod-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
16: Argids-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
17: Argids-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
18: Argixerolls-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Fair.
Durixerolls-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
19: Argixerolls-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Durixerolls-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
20: Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Poor	Very poor.	Fair	Very poor.	Fair.
21: Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
22: Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
23: Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
24: Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
25: Blint-----	Very poor.	Very poor.	Fair	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Fair.
26: Blint-----	Very poor.	Very poor.	Fair	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Fair.
27: Blint-----	Very poor.	Very poor.	Fair	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Fair.
Windry-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
28: Brehm-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
29: Brehm-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Gorskel-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Gorst-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
30: Caliralls-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
31: Caliralls-----	Poor	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
32: Caliralls-----	Poor	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
33: Caliralls-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
34: Caliralls-----	Poor	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
35: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
36: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
37: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
38: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
39: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Colockum-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
40: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Tanksel-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
41: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Tanksel-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Iainand-----	Very poor.	Very poor.	Good	Poor	Poor	Good	Very poor.	Very poor.	Poor	Very poor.	Good.
42: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
43: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
44: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
45: Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
46: Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
47: Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
48: Colockum-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
49: Colockum-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
50: Colockum-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.



Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
60: Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
61: Drino-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Sohappy-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Fortyday-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
62: Drino-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Sohappy-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Fortyday-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
63: Drysel-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
64: Drysel-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
65: Durtash-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
66: Esquatzel-----	Fair	Fair	Fair	Poor	Poor	Fair	Poor	Very poor.	Fair	Very poor.	Fair.
67: Esquatzel-----	Fair	Fair	Fair	Poor	Poor	Fair	Poor	Very poor.	Fair	Very poor.	Fair.
68: Esquatzel-----	Fair	Fair	Fair	Poor	Poor	Fair	Poor	Very poor.	Fair	Very poor.	Fair.
Aquolls-----	Poor	Poor	Good	Fair	Fair	Good	Fair	Fair	Poor	Fair	Good.
Weirman-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
69: Esquatzel-----	Fair	Fair	Fair	Poor	Poor	Fair	Poor	Very poor.	Fair	Very poor.	Fair.
Weirman fine sandy loam	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Fair	Very poor.	Poor.



Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
75: Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
76: Frint-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Fair.
Gidwin-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Rubble land-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
77: Frint-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Fair.
Hogranch-----	Very poor.	Very poor.	Good	Poor	Poor	Good	Very poor.	Very poor.	Poor	Very poor.	Good.
78: Frint-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Fair.
Hogranch-----	Very poor.	Very poor.	Good	Poor	Poor	Good	Very poor.	Very poor.	Poor	Very poor.	Good.
Gidwin-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
79: Gorskel silt loam-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Gorskel cobbly loam-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
80: Gorst-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor	Very poor.	Poor.
81: Grinrod-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
82: Grinrod-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
83: Haploxerolls-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
83: Orthents-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Aquolls-----	Poor	Poor	Good	Fair	Fair	Good	Fair	Fair	Poor	Fair	Good.
84: Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
85: Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
86: Kiona-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
87: Kiona-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Rubble land-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
88: Lainand-----	Very poor.	Very poor.	Good	Poor	Poor	Good	Very poor.	Very poor.	Poor	Very poor.	Good.
Tanksel-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
89: Laric-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
90: Laric-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
91: Levnik-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Nosser-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Nevo-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
92: Malaga-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
93: Malaga-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
94: Manastash-----	Poor	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
95: Manastash-----	Poor	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
96: Manastash-----	Poor	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Durtash-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
97: Manastash-----	Poor	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Durtash-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
98: Manastash-----	Poor	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Meloza-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Durtash-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
99: Manastash-----	Poor	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Selah-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Gorst-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
100: Marlic-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Laric-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
101: Meloza-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Roza-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
102: Meloza-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Roza-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
103: Meloza-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Roza-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
104: Nack-----	Good	Good	Good	Poor	Poor	Good	Good	Fair	Fair	Fair	Fair.
Opnish-----	Good	Good	Good	Poor	Poor	Good	Good	Fair	Fair	Fair	Fair.
105: Neppel-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Scoon-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
106: Nevo-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
107: Nevo-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Fortyday-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
108: Nevo very cobbly loam---	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Nevo extremely gravelly sandy loam-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
109: Nevo very cobbly loam---	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Nevo extremely gravelly sandy loam-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
110: Niben-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
110: Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
111: Norod-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
112: Norod-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
113: Norod-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
114: Norod-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Ralock-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
115: Norod-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Ralock-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
116: Norod-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Ralock-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Horseflat-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
117: Norod-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
117: Rubble land-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
118: Nosser-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Levnik-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
119: Nosser-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Levnik-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
120: Palerf-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Ralock-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
121: Palerf-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
122: Palexerolls-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Poor.
Patron-----	Fair	Good	Good	Poor	Poor	Good	Very poor.	Very poor.	Fair	Very poor.	Fair.
123: Patron-----	Fair	Good	Good	Poor	Poor	Good	Very poor.	Very poor.	Fair	Very poor.	Fair.
Camaspach-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
124: Prosser-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
125: Prosser-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Nevo-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.



Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
138: Rubble land-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Kiona-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
139: Sagehill-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Burbank-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Malaga-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
140: Scoon-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor	Very poor.	Poor.
141: Selah-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Poor	Fair.
142: Selah-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Fair	Very poor.	Fair.
143: Selah-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
144: Selah-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
145: Selah-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
146: Sohappy-----	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Fortyday-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
147: Sohappy-----	Poor	Poor	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Fortyday-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
148: Sohappy-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Fortyday-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
149: Starbuck-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Rock outcrop-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
150: Tankssel-----	Poor	Poor	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Patron-----	Poor	Poor	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
151: Tankssel-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Patron-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
152: Tankssel-----	Poor	Poor	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Wockum-----	Fair	Fair	Good	Poor	Poor	Good	Very poor.	Very poor.	Fair	Very poor.	Good.
153: Tankssel-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Wockum-----	Very poor.	Very poor.	Good	Poor	Poor	Good	Very poor.	Very poor.	Poor	Very poor.	Good.
154: Tankssel-----	Very poor.	Very poor.	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Wockum-----	Very poor.	Very poor.	Good	Poor	Poor	Good	Very poor.	Very poor.	Poor	Very poor.	Good.
155: Terlan-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
156: Terlan-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor	Very poor.	Poor.
157: Terlan-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor	Very poor.	Poor.
Durtash-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.	Poor	Very poor.	Poor.
Selah-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Fair	Very poor.	Fair.
158: Terlan-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Durtash-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Selah-----	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
159: Timmerman sandy loam----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Timmerman loamy sand----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
160: Tronsen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Poor	Very poor.	Fair.
161: Tronsen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Poor	Very poor.	Fair.
162: Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
163: Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
164: Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
165: Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
166: Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
167:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
168:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Argabak-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
169:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
170:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
171:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
172:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Rubble land-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
173:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Niben-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Clerf-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
174:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Vantage, thin-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
175:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Vantage, thin-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
176:											
Vantage-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Vantage, thin-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
177:											
Wanapum-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
178:											
Wanapum loam-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Wanapum cobbly loam----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
179:											
Wanapum loam-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Wanapum cobbly loam----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
180:											
Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
181:											
Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
182:											
Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Tronsen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Poor	Very poor.	Fair.
Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
183: Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Tronsen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Poor	Very poor.	Fair.
Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
184: Whiskeydick-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Tronsen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Camaspatch-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
185: Winchester-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Sagehill-----	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
Burbank-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
186: Wipple-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
187: Wipple-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
188: Wipple-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
189: Wockum-----	Fair	Fair	Good	Poor	Poor	Good	Very poor.	Very poor.	Fair	Very poor.	Good.
190: Wockum-----	Very poor.	Very poor.	Good	Poor	Poor	Good	Very poor.	Very poor.	Poor	Very poor.	Good.
191: Wockum-----	Fair	Fair	Good	Poor	Poor	Good	Very poor.	Very poor.	Fair	Very poor.	Good.
Blint-----	Very poor.	Very poor.	Fair	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Fair.

Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
192: Wockum-----	Very poor.	Very poor.	Good	Poor	Poor	Good	Very poor.	Very poor.	Poor	Very poor.	Good.
Blint-----	Very poor.	Very poor.	Fair	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Fair.
Windry-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
193: Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.	Poor	Very poor.	Fair.
194: Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
195: Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
196: Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Benwy-----	Fair	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.
Laric-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
197: Zen-----	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Poor	Very poor.	Fair.
Marlic-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Laric-----	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
198: Torrifluents, very cobble-----	Poor	Poor	Fair	Poor	Very poor.	Fair	Poor	Poor	Poor	Poor	Fair.
Torrifluents, gravelly	Poor	Poor	Fair	Poor	Very poor.	Fair	Poor	Poor	Poor	Poor	Fair.
199: Haploxerolls sandy loam	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Haploxerolls silt loam--	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
200: Malaga, cobbly-----	Poor	Fair	Fair	Poor	Poor	Fair	Very poor.	Very poor.	Fair	Very poor.	Fair.



Table 8.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wetland wild- life	Range- land wild- life
212: Willis-----	Fair	Good	Good	Fair	Very poor.	Good	Poor	Very poor.	Good	Very poor.	Fair.
213: Willis-----	Fair	Good	Good	Fair	Very poor.	Good	Poor	Very poor.	Good	Very poor.	Fair.
214: Willis-----	Fair	Good	Good	Fair	Very poor.	Good	Very poor.	Very poor.	Good	Very poor.	Fair.
215: Bakeoven-----	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Fair	Very poor.	Very poor.	Very poor.	Very poor.	Fair.

Table 9.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
2: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
3: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
4: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
5: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
6: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
7: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
Camaspach-----	Severe: depth to rock.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, depth to rock.	Severe: depth to rock.
8: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
Horseflat-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
9: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
Horseflat-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones.
10: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
11: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
Whiskeydick-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Severe: large stones.
12: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
Whiskeydick-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Severe: large stones.
13: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
Windry-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.
14: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
14: Zen-----	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Moderate: shrink-swell, depth to rock.	Moderate: depth to rock.
Grinrod-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.
15: Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
Zen-----	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Moderate: shrink-swell, depth to rock.	Moderate: depth to rock.
Grinrod-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.
16: Argids-----	Severe: cutbanks cave.	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: slope.	Moderate: large stones, slope.	Moderate: slope, small stones, droughty.
17: Argids-----	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
18: Argixerolls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Durixerolls-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope, small stones.
19: Argixerolls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Durixerolls-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.
20: Benwy-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Slight.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
21: Benwy-----	Moderate: cemented pan, slope.	Moderate: slope.	Moderate: cemented pan, slope.	Severe: slope.	Moderate: frost action, slope.	Moderate: slope.
22: Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
23: Benwy-----	Moderate: cemented pan, slope.	Moderate: slope.	Moderate: cemented pan, slope.	Severe: slope.	Moderate: frost action, slope.	Moderate: slope.
Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.
24: Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Argabak-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, small stones, depth to rock.
25: Blint-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
26: Blint-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
27: Blint-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Windry-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.
28: Brehm-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Severe: cemented pan.	Moderate: cemented pan, shrink-swell, slope.	Moderate: cemented pan, shrink-swell.	Moderate: cemented pan.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
29: Brehm-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell, slope.	Severe: cemented pan.	Severe: slope.	Moderate: cemented pan, shrink-swell, slope.	Moderate: cemented pan, slope.
Gorskel-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.
Gorst-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.
30: Caliralls-----	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Moderate: low strength, shrink-swell, slope.	Moderate: slope.
31: Caliralls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
32: Caliralls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Clerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
33: Caliralls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Clerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
34: Caliralls-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.
35: Camaspatch-----	Severe: depth to rock.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, depth to rock.	Severe: depth to rock.
36: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
37: Camaspatch-----	Severe: depth to rock.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, depth to rock.	Severe: depth to rock.
38: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
39: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
Colockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
40: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
Tanksel-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
41: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
Tanksel-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Lainand-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
42: Camaspatch-----	Severe: depth to rock.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, depth to rock.	Severe: depth to rock.
Whiskeydick-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Severe: large stones.
43: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
43: Whiskeydick-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
44: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
Whiskeydick-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
45: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
Whiskeydick-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
46: Clerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
47: Clerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
48: Colockum-----	Slight-----	Slight-----	Moderate: shrink-swell.	Moderate: slope.	Severe: low strength.	Slight.
49: Colockum-----	Moderate: slope.	Moderate: slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
50: Colockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
51: Colockum-----	Moderate: slope.	Moderate: slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
Tronsen-----	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Moderate: frost action, shrink-swell, slope.	Moderate: large stones, slope, small stones.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
52: Disage-----	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Severe: large stones, depth to rock.
53: Disage-----	Severe: large stones, slope, depth to rock.					
54: Disage-----	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.				
55: Disage-----	Severe: large stones, slope, depth to rock.					
Clenage-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.
56: Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
57: Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
58: Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
Disage-----	Severe: large stones, slope, depth to rock.					
Kiona-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
59: Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
Rubble land-----	Severe: large stones, slope.	Severe: large stones, small stones, droughty.				

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
59: Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
60: Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
Rubble land-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, small stones, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
61: Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, slope.	Severe: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
62: Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, slope.	Severe: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
63: Drysel-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Severe: low strength.	Moderate: cemented pan.
64: Drysel-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Severe: cemented pan.	Moderate: cemented pan, shrink-swell, slope.	Severe: low strength.	Moderate: cemented pan.
65: Durtash-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
66: Esquatzel-----	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
67: Esquatzel-----	Slight-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
68: Esquatzel-----	Slight-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
Aquolls-----	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness, droughty.
Weirman-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: small stones, droughty.
69: Esquatzel-----	Slight-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
Weirman fine sandy loam	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, droughty.
Weirman very cobbly sandy loam-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: small stones, droughty.
70: Finley sandy loam-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding, slope.	Moderate: flooding, frost action, slope.	Moderate: droughty.
Finley cobbly sandy loam-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding, slope.	Moderate: flooding, frost action, slope.	Moderate: large stones, small stones, droughty.
71: Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.
Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
Nevo-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
72: Fortyday-----	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.				
Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
Nevo-----	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.				
73: Fortyday-----	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.				
Drino-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, slope.	Severe: slope.
74: Fortyday-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Nevo-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rock outcrop-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
75: Fortyday-----	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.				
Rubble land-----	Severe: large stones, slope.	Severe: large stones, small stones, droughty.				
Rock outcrop-----	Severe: slope, depth to rock.	Severe: depth to rock.				
76: Frint-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
76: Gidwin-----	Severe: slope, depth to rock.					
Rubble land-----	Severe: large stones, slope.	Severe: large stones, small stones, droughty.				
77: Frint-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Hogranh-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
78: Frint-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Hogranh-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Gidwin-----	Severe: slope, depth to rock.					
79: Gorskel silt loam-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.
Gorskel cobbly loam-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.
80: Gorst-----	Severe: cemented pan.					
81: Grinrod-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.				
82: Grinrod-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
82: Horseflat-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.
83: Haploxerolls-----	Slight-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.	Slight.
Orthents-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: large stones, small stones, droughty.
Aquolls-----	Severe: wetness, cutbanks cave, depth to rock.	Severe: flooding, wetness.	Severe: flooding, wetness, depth to rock.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness, droughty.
84: Horseflat-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones.
85: Horseflat-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.
86: Kiona-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
87: Kiona-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
Rubble land-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, small stones, droughty.
88: Lainand-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Tanksel-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
89: Laric-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: small stones, depth to rock.



Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
98: Manastash-----	Severe: cemented pan, slope.	Severe: slope.	Severe: cemented pan, slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Meloza-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: shrink-swell, slope.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell, slope.	Severe: slope.
Durtash-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.
99: Manastash-----	Severe: cemented pan, slope.	Severe: slope.	Severe: cemented pan, slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Selah-----	Severe: cemented pan, slope.	Severe: slope.	Severe: cemented pan, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Gorst-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.
100: Marlic-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: low strength, depth to rock.	Severe: depth to rock.
Zen-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Moderate: slope, depth to rock.
Laric-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: small stones, depth to rock.
101: Meloza-----	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
Roza-----	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.
102: Meloza-----	Moderate: slope, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Moderate: slope.
Roza-----	Moderate: slope, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Severe: too clayey.



Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
109: Nevo extremely gravelly sandy loam-----	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.				
110: Niben-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Vantage-----	Severe: slope, depth to rock.					
Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
111: Norod-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.				
112: Norod-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.				
113: Norod-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.				
114: Norod-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.				





Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
128: Horseflat-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.
129: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Palerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
130: Ralock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Palerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
131: Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
132: Rollinger-----	Slight-----	Moderate: shrink-swell.	Slight-----	Moderate: shrink-swell, slope.	Severe: frost action, low strength.	Slight.
133: Rollinger-----	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope.	Severe: slope.	Severe: frost action, low strength.	Moderate: slope.
134: Rollinger-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, low strength, slope.	Severe: slope.
135: Rollinger-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, low strength, slope.	Severe: slope.
136: Rollinger-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, low strength, slope.	Severe: slope.
137: Rubble land-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, small stones, droughty.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
137: Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
138: Rubble land-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, small stones, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
Kiona-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
139: Sagehill-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Burbank-----	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, small stones, droughty.
Malaga-----	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
140: Scoon-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
141: Selah-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Moderate: cemented pan, shrink-swell.	Moderate: cemented pan.
142: Selah-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Moderate: cemented pan, shrink-swell.	Moderate: cemented pan.
143: Selah-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Severe: cemented pan.	Moderate: cemented pan, shrink-swell, slope.	Moderate: cemented pan, shrink-swell.	Moderate: cemented pan.
144: Selah-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell, slope.	Severe: cemented pan.	Severe: slope.	Moderate: cemented pan, shrink-swell, slope.	Moderate: cemented pan, slope.
145: Selah-----	Severe: cemented pan, slope.	Severe: slope.	Severe: cemented pan, slope.	Severe: slope.	Severe: slope.	Severe: slope.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
146: Schappy-----	Moderate: slope, depth to rock.	Moderate: slope.	Moderate: slope, depth to rock.	Severe: slope.	Severe: frost action.	Moderate: slope.
Fortyday-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
147: Schappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, slope.	Severe: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
148: Schappy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, slope.	Severe: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
149: Starbuck-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rock outcrop-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
150: Tankssel-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Patron-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell, slope.	Severe: slope.
Camaspach-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
151: Tankssel-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Patron-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell, slope.	Severe: slope.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
151: Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
152: Tankssel-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
153: Tankssel-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
154: Tankssel-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
155: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
156: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
157: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Durtash-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, large stones.
Selah-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Severe: cemented pan.	Moderate: cemented pan, shrink-swell.	Moderate: cemented pan, shrink-swell.	Moderate: cemented pan.
158: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.
Durtash-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan, large stones.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
158: Selah-----	Severe: cemented pan.	Moderate: cemented pan, shrink-swell, slope.	Severe: cemented pan.	Severe: slope.	Moderate: cemented pan, shrink-swell, slope.	Moderate: cemented pan, slope.
159: Timmerman sandy loam----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Moderate: droughty.
Timmerman loamy sand----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Moderate: droughty.
160: Tronsen-----	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Moderate: frost action, shrink-swell, slope.	Moderate: large stones, slope, small stones.
161: Tronsen-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
162: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: small stones, depth to rock.
163: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
164: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
165: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
166: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
167: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Benwy-----	Moderate: cemented pan, slope.	Moderate: slope.	Moderate: cemented pan, slope.	Severe: slope.	Moderate: frost action, slope.	Moderate: slope.
Argabak-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: large stones, small stones, depth to rock.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
168: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Argabak-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, small stones, depth to rock.
169: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Clerf-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Severe: large stones.
170: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Clerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
171: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Clerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
172: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Clerf-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Rubble land-----	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, small stones, droughty.
173: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
173: Niben-----	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
Clerf-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Severe: large stones.
174: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Vantage, thin-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
175: Vantage-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Vantage, thin-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
176: Vantage-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Vantage, thin-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
177: Wanapum-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
178: Wanapum loam-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Wanapum cobbly loam----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
179: Wanapum loam-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.
Wanapum cobbly loam----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.
180: Whiskeydick-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
181: Whiskeydick-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
182: Whiskeydick-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Tronsen-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
183: Whiskeydick-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Tronsen-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
184: Whiskeydick-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
Tronsen-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Camaspatch-----	Severe: slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: shrink-swell, slope, depth to rock.	Severe: slope, depth to rock.
185: Winchester-----	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sagehill-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Burbank-----	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, small stones, droughty.
186: Wipple-----	Moderate: large stones, slope, too clayey.	Moderate: large stones, shrink-swell, slope.	Moderate: large stones, shrink-swell, slope.	Severe: slope.	Moderate: large stones, shrink-swell, slope.	Severe: large stones.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
187: Wipple-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
188: Wipple-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
189: Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
190: Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
191: Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Blint-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
192: Wockum-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Blint-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Windry-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.
193: Zen-----	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Moderate: shrink-swell, depth to rock.	Moderate: depth to rock.
194: Zen-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Moderate: slope, depth to rock.
195: Zen-----	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
196: Zen-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Moderate: slope, depth to rock.
Benwy-----	Moderate: cemented pan, slope.	Moderate: slope.	Moderate: cemented pan, slope.	Severe: slope.	Moderate: frost action, slope.	Moderate: slope.
Laric-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: small stones, depth to rock.
197: Zen-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Moderate: slope, depth to rock.
Marlic-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: low strength, depth to rock.	Severe: depth to rock.
Laric-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: small stones, depth to rock.
198: Torrifluents, very cobbly-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: large stones, small stones, droughty.
Torrifluents, gravelly	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding. droughty.
199: Haploxerolls sandy loam	Slight-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.	Slight.
Haploxerolls silt loam--	Slight-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.	Slight.
200: Malaga, cobbly-----	Severe: cutbanks cave.	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: slope.	Moderate: large stones, slope.	Moderate: large stones, slope, droughty.
Malaga, stony-----	Severe: cutbanks cave.	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: slope.	Moderate: large stones, slope.	Moderate: large stones, small stones, droughty.
201: Semal, cobbly-----	Severe: cutbanks cave.	Moderate: large stones, slope.	Moderate: cemented pan, large stones, slope.	Severe: slope.	Moderate: large stones, slope.	Severe: droughty.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
201: Semal, very cobbly-----	Severe: cutbanks cave.	Moderate: large stones, slope.	Moderate: cemented pan, large stones, slope.	Severe: slope.	Moderate: large stones, slope.	Severe: large stones, small stones, droughty.
Semal, stony-----	Severe: cutbanks cave.	Moderate: large stones, slope.	Moderate: cemented pan, large stones, slope.	Severe: slope.	Moderate: large stones, slope.	Severe: droughty.
202: Water.						
203: Pits-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock. droughty.
204: Dam.						
205: Arents.						
206: Burbank-----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Severe: droughty.
207: Rock Creek-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, droughty.
208: Kiona-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
209: Licksillet-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
210: Starbuck-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: frost action, slope, depth to rock.	Severe: slope, depth to rock.
Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
211: Starbuck-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: frost action, slope, depth to rock.	Severe: slope, depth to rock.

Table 9.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
211: Rock outcrop-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
212: Willis-----	Severe: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Severe: frost action.	Moderate: cemented pan.
213: Willis-----	Severe: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan, slope.	Severe: frost action.	Moderate: cemented pan.
214: Willis-----	Severe: cemented pan.	Moderate: cemented pan, slope.	Severe: cemented pan.	Severe: slope.	Severe: frost action.	Moderate: cemented pan, slope.
215: Bakeoven-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, small stones, depth to rock.

Table 10.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
2: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
3: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
4: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
5: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
6: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
7: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Camaspach-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
8: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Horseflat-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: small stones, depth to rock.
9: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
9: Horseflat-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: small stones, depth to rock.
10: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
11: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Whiskeydick-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
12: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Whiskeydick-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
13: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Windry-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
14: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Zen-----	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock.
Grinrod-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
15: Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Zen-----	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock.
Grinrod-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
16: Argids-----	Severe: poor filter.	Severe: seepage, slope.	Moderate: large stones, slope.	Moderate: slope.	Poor: small stones.
17: Argids-----	Severe: slope, poor filter.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope, small stones.
18: Argixerolls-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Durixerolls-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Poor: cemented pan, slope, small stones.
19: Argixerolls-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Durixerolls-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Poor: cemented pan, slope, small stones.
20: Benwy-----	Moderate: percs slowly.	Severe: slope.	Slight-----	Slight-----	Fair: small stones.
21: Benwy-----	Moderate: cemented pan, percs slowly, slope.	Severe: slope.	Severe: cemented pan.	Moderate: slope.	Fair: cemented pan, slope, small stones.
22: Benwy-----	Severe: slope.	Severe: slope.	Severe: cemented pan, slope.	Severe: slope.	Poor: slope.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
23:					
Benwy-----	Moderate: cemented pan, percs slowly, slope.	Severe: slope.	Severe: cemented pan.	Moderate: slope.	Fair: cemented pan, slope, small stones.
Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
24:					
Benwy-----	Severe: slope.	Severe: slope.	Severe: cemented pan, slope.	Severe: slope.	Poor: slope.
Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Argabak-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, depth to rock.
25:					
Blint-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
26:					
Blint-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
27:					
Blint-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Windry-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
28:					
Brehm-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.
29:					
Brehm-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Moderate: slope.	Poor: cemented pan, small stones.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
29: Gorskel-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: cemented pan, small stones.
Gorst-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: cemented pan.
30: Caliralls-----	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope, small stones.
31: Caliralls-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
32: Caliralls-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Clerf-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
33: Caliralls-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Clerf-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
34: Caliralls-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
35: Camaspatch-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
36: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
37: Camaspatch-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
38: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
39: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Colockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope, small stones.
40: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Tanksel-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
41: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Tanksel-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Lainand-----	Severe: percs slowly, slope.	Severe: slope.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones.
42: Camaspatch-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
Whiskeydick-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
43: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Whiskeydick-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
44: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Whiskeydick-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
45: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Whiskeydick-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
46: Clerf-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
47: Clerf-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
48: Colockum-----	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Slight-----	Poor: small stones.
49: Colockum-----	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Poor: small stones.
50: Colockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope, small stones.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
51: Colockum-----	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Poor: small stones.
Tronsen-----	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: small stones, too clayey.
52: Disage-----	Severe: large stones, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: large stones depth to rock.
53: Disage-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: large stones slope, depth to rock.
54: Disage-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: large stones slope, depth to rock.
55: Disage-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: large stones slope, depth to rock.
Clenage-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
56: Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
57: Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
58: Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Disage-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: large stones slope, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
58: Kiona-----	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Poor: slope, small stones.
59: Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: slope, depth to rock.
60: Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: slope, depth to rock.
61: Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
62: Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
62: Fortyday-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
63: Drysel-----	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
64: Drysel-----	Severe: cemented pan, percs slowly.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
65: Durtash-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: cemented pan, small stones, too clayey.
66: Esquatzel-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Good.
67: Esquatzel-----	Moderate: flooding, percs slowly.	Moderate: seepage, slope.	Moderate: flooding.	Moderate: flooding.	Good.
68: Esquatzel-----	Moderate: flooding, percs slowly.	Moderate: seepage, slope.	Moderate: flooding.	Moderate: flooding.	Good.
Aquolls-----	Severe: flooding, wetness.	Severe: flooding, seepage.	Severe: flooding, seepage.	Severe: flooding, seepage.	Poor: seepage, too sandy.
Weirman-----	Severe: flooding, poor filter.	Severe: flooding, seepage.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, small stones, too sandy.
69: Esquatzel-----	Moderate: flooding, percs slowly.	Moderate: seepage.	Moderate: flooding.	Moderate: flooding.	Good.
Weirman fine sandy loam-----	Severe: flooding, poor filter.	Severe: flooding, seepage.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, small stones, too sandy.
Weirman very cobbly sandy loam-----	Severe: flooding, poor filter.	Severe: flooding, seepage.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, small stones, too sandy.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
70: Finley sandy loam-----	Severe: poor filter.	Severe: seepage, slope.	Severe: large stones, too sandy.	Moderate: flooding, slope.	Poor: seepage, small stones, too sandy.
Finley cobbly sandy loam-----	Severe: poor filter.	Severe: seepage, slope.	Severe: large stones, too sandy.	Moderate: flooding, slope.	Poor: seepage, small stones, too sandy.
71: Fortyday-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Nevo-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, depth to rock.
72: Fortyday-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Nevo-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, depth to rock.
73: Fortyday-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Drino-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope.
74: Fortyday-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: small stones, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
74: Nevo-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
75: Fortyday-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: slope, depth to rock.
76: Frint-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Gidwin-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
77: Frint-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Hogranch-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones.
78: Frint-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Hogranch-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
78: Gidwin-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
79: Gorskel silt loam-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: cemented pan, small stones.
Gorskel cobbly loam----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Severe: cemented pan.	Poor: cemented pan, small stones.
80: Gorst-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Poor: cemented pan.
81: Grinrod-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
82: Grinrod-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
83: Haploxerolls-----	Moderate: flooding, percs slowly.	Moderate: seepage, slope.	Moderate: flooding.	Moderate: flooding.	Good.
Orthents-----	Severe: flooding, poor filter.	Severe: flooding, seepage.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, small stones, too sandy.
Aquolls-----	Severe: flooding, wetness, depth to rock.	Severe: flooding, seepage, depth to rock.	Severe: flooding, seepage, depth to rock.	Severe: flooding, seepage, depth to rock.	Poor: seepage, too sandy, depth to rock.
84: Horseflat-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: small stones, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
85: Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
86: Kiona-----	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Poor: slope, small stones.
87: Kiona-----	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Poor: slope, small stones.
Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
88: Lainand-----	Severe: percs slowly, slope.	Severe: slope.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones.
Tanksel-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
89: Laric-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
90: Laric-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Zen-----	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
91: Levnik-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: too clayey, depth to rock.
Nosser-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Nevo-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
92: Malaga-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Slight-----	Poor: seepage, small stones, too sandy.
93: Malaga-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, small stones, too sandy.
94: Manastash-----	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: cemented pan, hard to pack, too clayey.
95: Manastash-----	Severe: cemented pan, percs slowly.	Severe: cemented pan, slope.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: cemented pan, hard to pack, too clayey.
96: Manastash-----	Severe: cemented pan, percs slowly.	Severe: cemented pan, slope.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: cemented pan, hard to pack, too clayey.
Durtash-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: cemented pan, small stones, too clayey.
97: Manastash-----	Severe: cemented pan, percs slowly, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope, too clayey.	Severe: cemented pan, slope.	Poor: cemented pan, hard to pack, too clayey.
Durtash-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope, too clayey.	Severe: cemented pan, slope.	Poor: cemented pan, small stones, too clayey.
98: Manastash-----	Severe: cemented pan, percs slowly, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope, too clayey.	Severe: cemented pan, slope.	Poor: cemented pan, hard to pack, too clayey.
Meloza-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: hard to pack, slope.
Durtash-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope, too clayey.	Severe: cemented pan, slope.	Poor: cemented pan, small stones, too clayey.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
99:					
Manastash-----	Severe: cemented pan, percs slowly, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope, too clayey.	Severe: cemented pan, slope.	Poor: cemented pan, hard to pack, too clayey.
Selah-----	Severe: cemented pan, percs slowly, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: slope.	Poor: cemented pan, slope, small stones.
Gorst-----	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Poor: cemented pan, slope.
100:					
Marlic-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: small stones, depth to rock.
Zen-----	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
Laric-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
101:					
Meloza-----	Severe: percs slowly.	Severe: slope.	Slight-----	Slight-----	Poor: hard to pack.
Roza-----	Severe: percs slowly.	Severe: slope.	Slight-----	Slight-----	Poor: hard to pack.
102:					
Meloza-----	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Poor: hard to pack.
Roza-----	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Poor: hard to pack.
103:					
Meloza-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: hard to pack, slope.
Roza-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: hard to pack, slope.
104:					
Nack-----	Severe: percs slowly, wetness.	Severe: wetness.	Severe: large stones, wetness.	Severe: wetness.	Poor: seepage, small stones.
Opnish-----	Severe: percs slowly, wetness.	Slight-----	Severe: wetness.	Severe: wetness.	Poor: small stones.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
105: Neppel-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, small stones, too sandy.
Scoon-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Moderate: slope.	Poor: cemented pan.
106: Nevo-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: depth to rock.
107: Nevo-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: depth to rock.
Fortyday-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: small stones, depth to rock.
108: Nevo very cobbly loam--	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: depth to rock.
Nevo extremely gravelly sandy loam-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: depth to rock.
109: Nevo very cobbly loam--	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, depth to rock.
Nevo extremely gravelly sandy loam-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, depth to rock.
110: Niben-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, too clayey.
Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Benwy-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
111: Norod-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
111: Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
112: Norod-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
113: Norod-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
114: Norod-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
115: Norod-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
116: Norod-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
116: Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
117: Norod-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
118: Nosser-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Levnik-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: too clayey, depth to rock.
119: Nosser-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, depth to rock.
Levnik-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: slope, too clayey, depth to rock.
120: Palerf-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
121: Palerf-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
121: Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
122: Palexerolls-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: hard to pack, too clayey, depth to rock.
Patron-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey, depth to rock.	Severe: slope.	Poor: hard to pack, slope, too clayey.
123: Patron-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: hard to pack, small stones, too clayey.
Camaspach-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
124: Prosser-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
125: Prosser-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
Nevo-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: depth to rock.
126: Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
127: Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
128: Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
129: Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Palerf-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
130: Ralock-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Palerf-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
131: Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: slope, depth to rock.
132: Rollinger-----	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Slight-----	Fair: too clayey.
133: Rollinger-----	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: slope, too clayey.
134: Rollinger-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
135: Rollinger-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
136: Rollinger-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
137: Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: slope, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
138: Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: slope, depth to rock.
Kiona-----	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Poor: slope, small stones.
139: Sagehill-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Burbank-----	Severe: slope, poor filter.	Severe: seepage, slope.	Severe: large stones, slope, too sandy.	Severe: slope.	Poor: seepage, small stones, too sandy.
Malaga-----	Severe: slope, poor filter.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: slope.	Poor: seepage, small stones, too sandy.
140: Scoon-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
141: Selah-----	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.
142: Selah-----	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.
143: Selah-----	Severe: cemented pan, percs slowly.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.
144: Selah-----	Severe: cemented pan, percs slowly.	Severe: cemented pan, slope.	Severe: cemented pan.	Moderate: slope.	Poor: cemented pan, small stones.
145: Selah-----	Severe: cemented pan, percs slowly, slope.	Severe: cemented pan, slope.	Severe: cemented pan, slope.	Severe: slope.	Poor: cemented pan, slope, small stones.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
146: Sohappy-----	Moderate: percs slowly, slope, depth to rock.	Severe: slope.	Severe: depth to rock.	Moderate: slope.	Fair: slope, small stones, depth to rock.
Fortyday-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: small stones, depth to rock.
147: Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
148: Sohappy-----	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
149: Starbuck-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: small stones, depth to rock.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
150: Tankssel-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Patron-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, small stones, too clayey.
Camaspitch-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
151: Tankssel-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
151: Patron-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, small stones, too clayey.
Camaspach-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
152: Tankssel-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Wockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
153: Tankssel-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Wockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
154: Tankssel-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Wockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
155: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
156: Terlan-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
157: Terlan-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
Durtash-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: cemented pan, small stones, too clayey.
Selah-----	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
158: Terlan-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Moderate: slope.	Poor: cemented pan.
Durtash-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: cemented pan, small stones, too clayey.
Selah-----	Severe: cemented pan, percs slowly.	Severe: cemented pan, slope.	Severe: cemented pan.	Moderate: slope.	Poor: cemented pan, small stones.
159: Timmerman sandy loam---	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, small stones, too sandy.
Timmerman loamy sand---	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, small stones, too sandy.
160: Tronsen-----	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: small stones, too clayey.
161: Tronsen-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, small stones, too clayey.
162: Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
163: Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
164: Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
165: Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
166: Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
167: Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
Benwy-----	Moderate: cemented pan, percs slowly, slope.	Severe: slope.	Severe: cemented pan.	Moderate: slope.	Fair: cemented pan, slope, small stones.
Argabak-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock.	Severe: depth to rock.	Poor: depth to rock.
168: Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Benwy-----	Severe: slope.	Severe: slope.	Severe: cemented pan, slope.	Severe: slope.	Poor: slope.
Argabak-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, depth to rock.
169: Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
Clerf-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: small stones, depth to rock.
170: Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Clerf-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
171: Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
171: Clerf-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
172: Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Clerf-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Rubble land-----	Severe: large stones, poor filter.	Severe: seepage, slope.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: seepage, slope, small stones.
173: Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
Niben-----	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey.
Clerf-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, depth to rock.	Moderate: slope.	Poor: small stones, depth to rock.
174: Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
Vantage, thin-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
175: Vantage-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
Vantage, thin-----	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Severe: too clayey, depth to rock.	Severe: depth to rock.	Poor: small stones, too clayey, depth to rock.
176: Vantage-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
176: Vantage, thin-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
177: Wanapum-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.
178: Wanapum loam-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.
Wanapum cobbly loam----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.
179: Wanapum loam-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Moderate: slope.	Poor: cemented pan, small stones.
Wanapum cobbly loam----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Moderate: slope.	Poor: cemented pan, small stones.
180: Whiskeydick-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
181: Whiskeydick-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
182: Whiskeydick-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Tronsen-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, small stones, too clayey.
Camaspach-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
183: Whiskeydick-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
183: Tronsen-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, small stones, too clayey.
Camaspach-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
184: Whiskeydick-----	Severe: percs slowly, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
Tronsen-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, small stones, too clayey.
Camaspach-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
185: Winchester-----	Severe: slope, poor filter.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: slope.	Poor: seepage, slope, too sandy.
Sagehill-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Burbank-----	Severe: slope, poor filter.	Severe: seepage, slope.	Severe: large stones, slope, too sandy.	Severe: slope.	Poor: seepage, small stones, too sandy.
186: Wipple-----	Severe: percs slowly.	Severe: large stones, slope.	Severe: large stones.	Moderate: slope.	Poor: small stones.
187: Wipple-----	Severe: percs slowly, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: slope.	Poor: slope, small stones.
188: Wipple-----	Severe: percs slowly, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: slope.	Poor: slope, small stones.
189: Wockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
190: Wockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
191: Wockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Blint-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
192: Wockum-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Blint-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
Windry-----	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
193: Zen-----	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock.
194: Zen-----	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
195: Zen-----	Severe: percs slowly, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, depth to rock.
196: Zen-----	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
Benwy-----	Moderate: cemented pan, percs slowly, slope.	Severe: slope.	Severe: cemented pan.	Moderate: slope.	Fair: cemented pan, slope, small stones.
Laric-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
197:					
Zen-----	Severe: percs slowly, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
Marlic-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: small stones, depth to rock.
Laric-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
198:					
Torrifluents, very cobble-----	Severe: flooding.	Severe: flooding, large stones, seepage.	Severe: flooding, large stones, too sandy.	Severe: flooding.	Poor: seepage, small stones, too sandy.
Torrifluents, gravelly-----	Severe: flooding.	Severe: flooding, large stones, seepage.	Severe: flooding, large stones, too sandy.	Severe: flooding.	Poor: seepage, small stones, too sandy.
199:					
Haploxerolls sandy loam-----	Moderate: flooding, percs slowly.	Severe: seepage.	Moderate: flooding.	Moderate: flooding.	Good.
Haploxerolls silt loam	Moderate: flooding, percs slowly.	Moderate: seepage, slope.	Moderate: flooding.	Moderate: flooding.	Good.
200:					
Malaga, cobble-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, small stones, too sandy.
Malaga, stony-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, small stones, too sandy.
201:					
Semal, cobble-----	Severe: cemented pan.	Severe: cemented pan, seepage, slope.	Severe: large stones.	Moderate: slope.	Poor: cemented pan, seepage, small stones.
Semal, very cobble-----	Severe: cemented pan.	Severe: cemented pan, seepage, slope.	Severe: large stones.	Moderate: slope.	Poor: cemented pan, seepage, small stones.
Semal, stony-----	Severe: cemented pan.	Severe: cemented pan, seepage, slope.	Severe: large stones.	Moderate: slope.	Poor: cemented pan, seepage, small stones.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
202: Water.					
203: Pits-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, depth to rock.
204: Dam.					
205: Arents.					
206: Burbank-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, small stones, too sandy.
207: Rock Creek-----	Severe: large stones, slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, too clayey, depth to rock.	Severe: slope, depth to rock.	Poor: small stones, too clayey, depth to rock.
208: Kiona-----	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Poor: slope, small stones.
209: Lickskillet-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, small stones, depth to rock.
210: Starbuck-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: slope, depth to rock.
211: Starbuck-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, small stones, depth to rock.
Rock outcrop-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: slope, depth to rock.
212: Willis-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, depth to rock.	Severe: cemented pan.	Poor: cemented pan.

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
213: Willis-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, depth to rock.	Severe: cemented pan.	Poor: cemented pan.
214: Willis-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan, depth to rock.	Severe: cemented pan.	Poor: cemented pan.
215: Bakeoven-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, depth to rock.

Table 11.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
2: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
3: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
4: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
5: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
6: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
7: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Camaspatch-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: small stones, depth to rock.
8: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
9: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
10: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
11: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Whiskeydick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
12: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Whiskeydick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
13: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Windry-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
14: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, depth to rock.
Grinrod-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
15: Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, depth to rock.
Grinrod-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
16: Argids-----	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones.
17: Argids-----	Fair: large stones, slope.	Probable-----	Probable-----	Poor: area reclaim, slope, small stones.
18: Argixerolls-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Durixerolls-----	Poor: cemented pan, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, slope, small stones.
19: Argixerolls-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Durixerolls-----	Poor: cemented pan, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, slope, small stones.
20: Benwy-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, too clayey.
21: Benwy-----	Fair: cemented pan, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
22: Benwy-----	Fair: cemented pan, slope, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
23: Benwy-----	Fair: cemented pan, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
24: Benwy-----	Fair: cemented pan, slope, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
25: Blint-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
26: Blint-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
27: Blint-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Windry-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
28: Brehm-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
29: Brehm-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Gorskel-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Gorst-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
30: Caliralls-----	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
31: Caliralls-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
32: Caliralls-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Clerf-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
33: Caliralls-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Clerf-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
34: Caliralls-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
35: Camaspach-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: small stones, depth to rock.
36: Camaspach-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
37: Camaspach-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: small stones, depth to rock.
38: Camaspach-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
39: Camaspach-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
Colockum-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
40: Camaspatch-----	Poor: shrink-swell, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
Tanksel-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
41: Camaspatch-----	Poor: shrink-swell, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
Tanksel-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Lainand-----	Poor: slope.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: area reclaim, slope, small stones.
42: Camaspatch-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: small stones, depth to rock.
Whiskeydick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
43: Camaspatch-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
Whiskeydick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
44: Camaspatch-----	Poor: shrink-swell, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
Whiskeydick-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
45: Camaspatch-----	Poor: shrink-swell, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
45: Whiskeydick-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
46: Clerf-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
47: Clerf-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
48: Colockum-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
49: Colockum-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
50: Colockum-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
51: Colockum-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Tronsen-----	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
52: Disage-----	Poor: large stones, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: large stones, too clayey, depth to rock.
53: Disage-----	Poor: large stones, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: large stones, too clayey, depth to rock.
54: Disage-----	Poor: large stones, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: large stones, too clayey, depth to rock.
55: Disage-----	Poor: large stones, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: large stones, too clayey, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
55: Clenage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
56: Drino-----	Poor: depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.
57: Drino-----	Poor: depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.
58: Drino-----	Poor: slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.
Disage-----	Poor: large stones, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: large stones, too clayey, depth to rock.
Kiona-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
59: Drino-----	Poor: slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.
Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.
Rock outcrop-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
60: Drino-----	Poor: slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.
Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.
Rock outcrop-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
61: Drino-----	Poor: slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
61: Sohappy-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Fortyday-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
62: Drino-----	Poor: slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.
Sohappy-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Fortyday-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
63: Drysel-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, too clayey.
64: Drysel-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, too clayey.
65: Durtash-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
66: Esquatzel-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
67: Esquatzel-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
68: Esquatzel-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Aquolls-----	Poor: wetness.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
Weirman-----	Good-----	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
69: Esquatzel-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Weirman fine sandy loam	Good-----	Probable-----	Probable-----	Poor: area reclaim, small stones.
Weirman very cobbly sandy loam-----	Good-----	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
70: Finley sandy loam-----	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones.
Finley cobbly sandy loam-----	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones.
71: Fortyday-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
Drino-----	Poor: depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.
Nevo-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
72: Fortyday-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
Drino-----	Poor: slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.
Nevo-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
73: Fortyday-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
Drino-----	Poor: slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
73: Sohappy-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
74: Fortyday-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Nevo-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Rock outcrop-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
75: Fortyday-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.
Rock outcrop-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
76: Frint-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Gidwin-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.
77: Frint-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Hogranch-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
78: Frint-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
78: Hogranch-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Gidwin-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
79: Gorskel silt loam-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Gorskel cobbly loam-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
80: Gorst-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
81: Grinrod-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
82: Grinrod-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Horseflat-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
83: Haploxerolls-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Orthents-----	Good-----	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
Aquolls-----	Poor: wetness, depth to rock.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
84: Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
85: Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
86: Kiona-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
87: Kiona-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.
88: Lainand-----	Poor: slope.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: area reclaim, slope, small stones.
Tanksel-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
89: Laric-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
90: Laric-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, depth to rock.
91: Levnik-----	Poor: low strength, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Nosser-----	Poor: low strength, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Nevo-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
92: Malaga-----	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
93: Malaga-----	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
94: Manastash-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
95: Manastash-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
96: Manastash-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
Durtash-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones, too clayey.
97: Manastash-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Durtash-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones, too clayey.
98: Manastash-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Meloza-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
Durtash-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones, too clayey.
99: Manastash-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
99: Selah-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Gorst-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, slope, small stones.
100: Marlic-----	Poor: low strength, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, depth to rock.
Laric-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
101: Meloza-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Roza-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
102: Meloza-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Roza-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
103: Meloza-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
Roza-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
104: Nack-----	Fair: large stones, shrink-swell, wetness.	Improbable: small stones.	Probable-----	Poor: area reclaim, small stones.
Opnish-----	Fair: shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
105: Neppel-----	Good-----	Improbable: small stones.	Probable-----	Poor: area reclaim, small stones.
Scoon-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
106: Nevo-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
107: Nevo-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Fortyday-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
108: Nevo very cobbly loam---	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Nevo extremely gravelly sandy loam-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
109: Nevo very cobbly loam---	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
Nevo extremely gravelly sandy loam-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
110: Niben-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Benwy-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
111: Norod-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
111: Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
112: Norod-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Horseflat-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
113: Norod-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Horseflat-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
114: Norod-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Ralock-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
115: Norod-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Ralock-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Horseflat-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
116: Norod-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
116: Ralock-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Horseflat-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
117: Norod-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.
118: Nosser-----	Poor: low strength, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Levnik-----	Poor: low strength, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
119: Nosser-----	Poor: low strength, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Levnik-----	Poor: low strength, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
120: Palerf-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Ralock-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
121: Palerf-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
121: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
122: Palexerolls-----	Poor: shrink-swell, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Patron-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
123: Patron-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Camaspach-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
124: Prosser-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, depth to rock.
125: Prosser-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, depth to rock.
Nevo-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
126: Ralock-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
127: Ralock-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
128: Ralock-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
128: Horseflat-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
129: Ralock-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Palerf-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
130: Ralock-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Palerf-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
131: Rock outcrop-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
132: Rollinger-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, too clayey.
133: Rollinger-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.
134: Rollinger-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
135: Rollinger-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
136: Rollinger-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
137: Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
137: Rock outcrop-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
138: Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.
Rock outcrop-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
Kiona-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
139: Sagehill-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Burbank-----	Poor: slope.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
Malaga-----	Poor: slope.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
140: Scoon-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
141: Selah-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
142: Selah-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
143: Selah-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
144: Selah-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
145: Selah-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
146: Sohappy-----	Fair: thin layer, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Fortyday-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
147: Sohappy-----	Fair: slope, thin layer, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Fortyday-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
148: Sohappy-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Fortyday-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
149: Starbuck-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Rock outcrop-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
150: Tankssel-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Patron-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Camaspach-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
151: Tankssel-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
151: Patron-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Camaspach-----	Poor: shrink-swell, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
152: Tanksel-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Wockum-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
153: Tanksel-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Wockum-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
154: Tanksel-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Wockum-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
155: Terlan-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
156: Terlan-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
157: Terlan-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Durtash-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones, too clayey.
Selah-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
158: Terlan-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Durtash-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones, too clayey.
Selah-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
159: Timmerman sandy loam----	Good-----	Probable-----	Improbable: too sandy.	Poor: area reclaim, small stones, too sandy.
Timmerman loamy sand----	Good-----	Probable-----	Improbable: too sandy.	Poor: area reclaim, small stones, too sandy.
160: Tronsen-----	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
161: Tronsen-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
162: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
163: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
164: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
165: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
166: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
167: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Benwy-----	Fair: cemented pan, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
168: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Benwy-----	Fair: cemented pan, slope, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Argabak-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
169: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Clerf-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
170: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Clerf-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
171: Vantage-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
171: Clerf-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
172: Vantage-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Clerf-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Rubble land-----	Poor: large stones, slope.	Improbable: large stones, small stones.	Improbable: large stones.	Poor: area reclaim, slope, small stones.
173: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Niben-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Clerf-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
174: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Vantage, thin-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
175: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
Vantage, thin-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
176: Vantage-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
176: Vantage, thin-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey, depth to rock.
177: Wanapum-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
178: Wanapum loam-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Wanapum cobbly loam----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
179: Wanapum loam-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Wanapum cobbly loam----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
180: Whiskeydick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
181: Whiskeydick-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
182: Whiskeydick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Tronsen-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
Camaspach-----	Poor: shrink-swell, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
183: Whiskeydick-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
183: Tronsen-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
Camaspatch-----	Poor: shrink-swell, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
184: Whiskeydick-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, too clayey.
Tronsen-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
Camaspatch-----	Poor: shrink-swell, slope, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: slope, small stones, depth to rock.
185: Winchester-----	Fair: slope.	Probable-----	Improbable: too sandy.	Poor: slope, too sandy.
Sagehill-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Burbank-----	Fair: large stones, slope.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
186: Wipple-----	Fair: large stones, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
187: Wipple-----	Fair: large stones, shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
188: Wipple-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, too clayey.
189: Wockum-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
190: Wockum-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
191: Wockum-----	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Blint-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
192: Wockum-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Blint-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Windry-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
193: Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, depth to rock.
194: Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, depth to rock.
195: Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
196: Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, depth to rock.
Benwy-----	Fair: cemented pan, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Laric-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
197: Zen-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, depth to rock.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
197: Marlic-----	Poor: low strength, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
Laric-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, depth to rock.
198: Torrifluvents, very cobble-----	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
Torrifluvents, gravelly	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
199: Haploxerolls sandy loam	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Haploxerolls silt loam--	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
200: Malaga, cobble-----	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
Malaga, stony-----	Fair: large stones.	Probable-----	Probable-----	Poor: area reclaim, small stones, too sandy.
201: Semal, cobble-----	Fair: large stones.	Improbable: large stones.	Improbable: large stones.	Poor: area reclaim, small stones.
Semal, very cobble-----	Fair: large stones.	Improbable: large stones.	Improbable: large stones.	Poor: area reclaim, small stones.
Semal, stony-----	Fair: large stones.	Improbable: large stones.	Improbable: large stones.	Poor: area reclaim, small stones.
202: Water.				
203: Pits-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
204: Dam.				

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
205: Arents.				
206: Burbank-----	Good-----	Probable-----	Probable-----	Poor: area reclaim, small stones.
207: Rock Creek-----	Poor: large stones, depth to rock.	Improbable: large stones, excess fines.	Improbable: large stones, excess fines.	Poor: small stones, too clayey, depth to rock.
208: Kiona-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
209: Licksillet-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
210: Starbuck-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
Rock outcrop-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
211: Starbuck-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.
Rock outcrop-----	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
212: Willis-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, thin layer.
213: Willis-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, thin layer.
214: Willis-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, slope, thin layer.

Table 11.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
215: Bakeoven-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones, depth to rock.

Table 12.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
2: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
3: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
4: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
5: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
6: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
7: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
8: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
9: Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
10:						
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
11:						
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
12:						
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
13:						
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Windry-----	Severe: slope, depth to rock.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
14:						
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Zen-----	Moderate: slope, depth to rock.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, depth to rock.	Erodes easily, too arid.
Grinrod-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
15:						
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Zen-----	Moderate: slope, depth to rock.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, depth to rock.	Erodes easily, too arid.
Grinrod-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
16: Argids-----	Severe: seepage, slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, soil blowing.	Large stones, slope, too arid.
17: Argids-----	Severe: seepage, slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
18: Argixerolls-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, percs slowly, slope.	Slope-----	Slope.
Durixerolls-----	Severe: cemented pan, slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Cemented pan, large stones, slope.	Large stones, slope, droughty.
19: Argixerolls-----	Severe: slope.	Moderate: piping.	Deep to water	Percs slowly, slope.	Slope-----	Slope.
Durixerolls-----	Severe: cemented pan, slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Cemented pan, large stones, slope.	Large stones, slope, droughty.
20: Benwy-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily	Erodes easily, too arid.
21: Benwy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
22: Benwy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
23: Benwy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
24: Benwy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
24: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
25: Blint-----	Severe: slope.	Moderate: large stones, thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
26: Blint-----	Severe: slope.	Moderate: large stones, thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
27: Blint-----	Severe: slope.	Moderate: large stones, thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Windry-----	Severe: slope, depth to rock.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
28: Brehm-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, large stones, slope.	Cemented pan, large stones.	Large stones, too arid.
29: Brehm-----	Severe: slope.	Severe: thin layer.	Deep to water	Cemented pan, large stones, slope.	Cemented pan, large stones, slope.	Large stones, slope, too arid.
Gorskel-----	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, slope.	Cemented pan, large stones, slope.	Erodes easily, large stones, slope.
Gorst-----	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.
30: Caliralls-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
31: Caliralls-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
32: Caliralls-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
32: Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
33: Caliralls-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
34: Caliralls-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
35: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
36: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
37: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
38: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
39: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Colockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
40: Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Tanksel-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
41: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Tanksel-----	Severe: slope.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Lainand-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
42: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
43: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
44: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
45: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
46: Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
47: Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
48: Colockum-----	Moderate: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily	Erodes easily.
49: Colockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope,
50: Colockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
51: Colockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
Tronsen-----	Severe: slope.	Moderate: large stones.	Deep to water	Percs slowly, slope, droughty.	Large stones, percs slowly, slope.	Large stones, slope, droughty.
52: Disage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
53: Disage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
54: Disage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
55: Disage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Clenage-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
56: Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
57: Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
58: Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
58:						
Disage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Kiona-----	Severe: slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
59:						
Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
60:						
Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
61:						
Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Sohappy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
62:						
Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Sohappy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
63: Drysel-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
64: Drysel-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
65: Durtash-----	Severe: cemented pan.	Severe: thin layer.	Deep to water	Cemented pan, percs slowly, slope.	Cemented pan, large stones.	Erodes easily, large stones.
66: Esquatzel-----	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily	Erodes easily	Erodes easily, too arid.
67: Esquatzel-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily	Erodes easily, too arid.
68: Esquatzel-----	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily	Erodes easily	Erodes easily, too arid.
Aquolls-----	Severe: seepage.	Severe: large stones, seepage, wetness.	Flooding, large stones.	Large stones, wetness.	Large stones, wetness.	Large stones, wetness, droughty.
Weirman-----	Severe: seepage.	Severe: seepage.	Deep to water	Flooding, droughty.	Large stones, too sandy.	Large stones, too arid, droughty.
69: Esquatzel-----	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily	Erodes easily	Erodes easily, too arid.
Weirman fine sandy loam-----	Severe: seepage.	Severe: seepage.	Deep to water	Erodes easily, droughty.	Erodes easily, too sandy.	Erodes easily, too arid, droughty.
Weirman very cobbly sandy loam-----	Severe: seepage.	Severe: seepage.	Deep to water	Flooding, droughty.	Large stones, too sandy.	Large stones, too arid, droughty.
70: Finley sandy loam-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Erodes easily, large stones, slope.	Large stones, slope, too arid.
Finley cobbly sandy loam-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
71:						
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Nevo-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
72:						
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Nevo-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
73:						
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Drino-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Sohappy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
74:						
Fortyday-----	Severe: slope, depth to rock.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Nevo-----	Severe: slope, depth to rock.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
75:						
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
75: Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
76: Frint-----	Severe: slope.	Severe: thin layer.	Deep to water	Slope, soil blowing, depth to rock.	Large stones, slope, depth to rock.	Large stones, slope, depth to rock.
Gidwin-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
77: Frint-----	Severe: slope.	Severe: thin layer.	Deep to water	Slope, soil blowing, depth to rock.	Large stones, slope, depth to rock.	Large stones, slope, depth to rock.
Hogranh-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, soil blowing.	Large stones, slope, droughty.
78: Frint-----	Severe: slope.	Severe: thin layer.	Deep to water	Slope, soil blowing, depth to rock.	Large stones, slope, depth to rock.	Large stones, slope, depth to rock.
Hogranh-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, soil blowing.	Large stones, slope, droughty.
Gidwin-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
79: Gorskel silt loam-----	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, slope.	Cemented pan, large stones, slope.	Erodes easily, large stones, slope.
Gorskel cobbly loam----	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, large stones, slope.	Cemented pan, large stones, slope.	Large stones, slope.
80: Gorst-----	Severe: cemented pan.	Severe: thin layer.	Deep to water	Cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, cemented pan.
81: Grinrod-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
82: Grinrod-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
83: Haploxerolls-----	Moderate: seepage.	Severe: piping.	Deep to water	Favorable-----	Erodes easily	Erodes easily.
Orthents-----	Severe: seepage.	Severe: seepage.	Deep to water	Fast intake, droughty.	Large stones, too sandy, soil blowing.	Large stones, droughty.
Aquolls-----	Severe: seepage.	Severe: large stones, seepage, wetness.	Flooding, large stones, depth to rock.	Large stones, wetness.	Large stones, wetness, depth to rock.	Large stones, wetness, droughty.
84: Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
85: Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
86: Kiona-----	Severe: slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
87: Kiona-----	Severe: slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
87: Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
88: Lainand-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
Tanksel-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
89: Laric-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
90: Laric-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Zen-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
91: Levnik-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Percs slowly, slope, depth to rock.	Percs slowly, slope, depth to rock.	Percs slowly, slope, depth to rock.
Nosser-----	Severe: slope.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Nevo-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
92: Malaga-----	Severe: seepage.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, too sandy.	Large stones, too arid.
93: Malaga-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, too sandy.	Large stones, slope, too arid.
94: Manastash-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, percs slowly, slope.	Erodes easily, cemented pan.	Erodes easily, cemented pan.
95: Manastash-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, percs slowly, slope.	Erodes easily, cemented pan.	Erodes easily, cemented pan.
96: Manastash-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, percs slowly, slope.	Erodes easily, cemented pan.	Erodes easily, cemented pan.
Durtash-----	Severe: cemented pan.	Moderate: large stones.	Deep to water	Large stones, slope.	Cemented pan, large stones.	Large stones.
97: Manastash-----	Severe: slope.	Severe: thin layer.	Deep to water	Cemented pan, percs slowly, slope.	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.
Durtash-----	Severe: cemented pan, slope.	Moderate: large stones.	Deep to water	Large stones, slope.	Cemented pan, large stones, slope.	Large stones, slope.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
98: Manastash-----	Severe: slope.	Severe: thin layer.	Deep to water	Cemented pan, percs slowly, slope.	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.
Meloza-----	Severe: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope, too arid.
Durtash-----	Severe: cemented pan, slope.	Moderate: large stones.	Deep to water	Large stones, slope.	Cemented pan, large stones, slope.	Large stones, slope.
99: Manastash-----	Severe: slope.	Severe: thin layer.	Deep to water	Cemented pan, percs slowly, slope.	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.
Selah-----	Severe: slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, slope, too arid.
Gorst-----	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.
100: Marlic-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Zen-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
Laric-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
101: Meloza-----	Moderate: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly.	Percs slowly, too arid.
Roza-----	Moderate: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope, slow intake.	Percs slowly.	Percs slowly, too arid.
102: Meloza-----	Severe: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope, too arid.
Roza-----	Severe: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope, slow intake.	Percs slowly, slope.	Percs slowly, slope, too arid.
103: Meloza-----	Severe: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
103: Roza-----	Severe: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope, slow intake.	Percs slowly, slope.	Percs slowly, slope, too arid.
104: Nack-----	Slight-----	Severe: seepage, wetness.	Frost action, large stones.	Large stones, wetness.	Large stones, wetness.	Large stones, droughty.
Opnish-----	Slight-----	Moderate: wetness.	Frost action, large stones, percs slowly.	Erodes easily, percs slowly, wetness.	Erodes easily, percs slowly, wetness.	Erodes easily, percs slowly.
105: Neppel-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Slope, droughty.	Erodes easily, slope, too sandy.	Erodes easily, slope, too arid.
Scoon-----	Severe: cemented pan, slope.	Severe: piping.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, slope, too arid.
106: Nevo-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
107: Nevo-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
108: Nevo very cobbly loam--	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Nevo extremely gravelly sandy loam-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
109: Nevo very cobbly loam--	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Nevo extremely gravelly sandy loam-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
110: Niben-----	Severe: slope.	Slight-----	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
110: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Benwy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
111: Norod-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
112: Norod-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
113: Norod-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
114: Norod-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
115: Norod-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
116: Norod-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
117: Norod-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
118: Nosser-----	Severe: slope.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Levnik-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Percs slowly, slope, depth to rock.	Percs slowly, slope, depth to rock.	Percs slowly, slope, depth to rock.
119: Nosser-----	Severe: slope.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Levnik-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Percs slowly, slope, depth to rock.	Percs slowly, slope, depth to rock.	Percs slowly, slope, depth to rock.
120: Palerf-----	Severe: slope.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
121: Palerf-----	Severe: slope.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
122: Palixerolls-----	Severe: slope.	Moderate: hard to pack, large stones, thin layer.	Deep to water	Percs slowly, slope, depth to rock.	Large stones, slope, depth to rock.	Large stones, slope, depth to rock.
Patron-----	Severe: slope.	Moderate: hard to pack, thin layer.	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
123: Patron-----	Severe: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
124: Prosser-----	Severe: slope.	Severe: piping.	Deep to water	Slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
125: Prosser-----	Severe: slope.	Severe: piping.	Deep to water	Slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
Nevo-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
126: Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
127: Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
128: Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
Horseflat-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
129: Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
Palerf-----	Severe: slope.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
130: Ralock-----	Severe: slope.	Slight-----	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
130: Palerf-----	Severe: slope.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
131: Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
132: Rollinger-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily	Erodes easily.
133: Rollinger-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
134: Rollinger-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
135: Rollinger-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
136: Rollinger-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope.
137: Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
138: Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Kiona-----	Severe: slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
139: Sagehill-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope, too arid.
Burbank-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, too sandy.	Large stones, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
139: Malaga-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, too sandy.	Large stones, slope, too arid.
140: Scoon-----	Severe: cemented pan.	Severe: piping.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
141: Selah-----	Moderate: cemented pan.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan.	Erodes easily, cemented pan.	Erodes easily, too arid.
142: Selah-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
143: Selah-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
144: Selah-----	Severe: slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, slope, too arid.
145: Selah-----	Severe: slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, slope, too arid.
146: Sohappy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
147: Sohappy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
148: Sohappy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Fortyday-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
149: Starbuck-----	Severe: slope, depth to rock.	Severe: piping.	Deep to water	Slope, soil blowing, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
150: Tankssel-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Patron-----	Severe: slope.	Slight-----	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
151: Tankssel-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Patron-----	Severe: slope.	Slight-----	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
152: Tankssel-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Wockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope.
153: Tankssel-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Wockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope.
154: Tankssel-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Wockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
155: Terlan-----	Severe: cemented pan.	Severe: thin layer.	Deep to water	Cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
156: Terlan-----	Severe: cemented pan.	Severe: thin layer.	Deep to water	Cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
157: Terlan-----	Severe: cemented pan.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
Durtash-----	Severe: cemented pan.	Severe: thin layer.	Deep to water	Large stones, percs slowly, slope.	Cemented pan, large stones.	Cemented pan, large stones
Selah-----	Moderate: cemented pan, slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, too arid.
158: Terlan-----	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, slope, too arid.
Durtash-----	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, slope.	Cemented pan, large stones, slope.	Cemented pan, large stones, slope.
Selah-----	Severe: slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, slope, too arid.
159: Timmerman sandy loam---	Severe: seepage.	Severe: seepage, piping.	Deep to water	Slope, droughty.	Too sandy, soil blowing.	Too arid, droughty.
Timmerman loamy sand---	Severe: seepage.	Severe: seepage, piping.	Deep to water	Fast intake, slope, droughty.	Too sandy, soil blowing.	Too arid, droughty.
160: Tronsen-----	Severe: slope.	Moderate: large stones.	Deep to water	Percs slowly, slope, droughty.	Large stones, percs slowly, slope.	Large stones, slope, droughty.
161: Tronsen-----	Severe: slope.	Moderate: large stones.	Deep to water	Percs slowly, slope, droughty.	Large stones, percs slowly, slope.	Large stones, slope, droughty.
162: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
163: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
164: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
165: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
166: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
167: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Benwy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
168: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Benwy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Argabak-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
169: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
170: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
170: Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
171: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
172: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
Rubble land-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, droughty.
173: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Niben-----	Severe: slope.	Slight-----	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
Clerf-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, too arid.
174: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Vantage, thin-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
175: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Vantage, thin-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
176: Vantage-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
176: Vantage, thin-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
177: Wanapum-----	Severe: cemented pan.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Cemented pan, large stones.	Large stones, too arid.
178: Wanapum loam-----	Severe: cemented pan.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Cemented pan, large stones.	Large stones, too arid.
Wanapum cobbly loam----	Severe: cemented pan.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Cemented pan, large stones.	Large stones, too arid.
179: Wanapum loam-----	Severe: cemented pan, slope.	Severe: thin layer.	Deep to water	Erodes easily, cemented pan, slope.	Cemented pan, large stones, slope.	Large stones, slope, too arid.
Wanapum cobbly loam----	Severe: cemented pan, slope.	Moderate: large stones.	Deep to water	Large stones, slope, droughty.	Cemented pan, large stones, slope.	Large stones, slope, too arid.
180: Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
181: Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
182: Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Tronsen-----	Severe: slope.	Moderate: large stones.	Deep to water	Percs slowly, slope, droughty.	Large stones, percs slowly, slope.	Large stones, slope, droughty.
Camaspach-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
183: Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Tronsen-----	Severe: slope.	Moderate: large stones.	Deep to water	Percs slowly, slope, droughty.	Large stones, percs slowly, slope.	Large stones, slope, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
183: Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
184: Whiskeydick-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Tronsen-----	Severe: slope.	Moderate: large stones.	Deep to water	Percs slowly, slope, droughty.	Large stones, percs slowly, slope.	Large stones, slope, droughty.
Camaspatch-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
185: Winchester-----	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Fast intake, slope, droughty.	Slope, too sandy, soil blowing.	Slope, too arid, droughty.
Sagehill-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope, too arid.
Burbank-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, too sandy.	Large stones, slope, too arid.
186: Wipple-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
187: Wipple-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
188: Wipple-----	Severe: slope.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
189: Wockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope.
190: Wockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope.
191: Wockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
191: Blint-----	Severe: slope.	Moderate: large stones, thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
192: Wockum-----	Severe: slope.	Moderate: piping.	Deep to water	Erodes easily, slope, soil blowing.	Erodes easily, slope, soil blowing.	Erodes easily, slope.
Blint-----	Severe: slope.	Moderate: large stones, thin layer.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
Windry-----	Severe: slope, depth to rock.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
193: Zen-----	Moderate: slope, depth to rock.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, depth to rock.	Erodes easily, too arid.
194: Zen-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
195: Zen-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
196: Zen-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
Benwy-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily, slope.	Erodes easily, slope, too arid.
Laric-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
197: Zen-----	Severe: slope.	Severe: piping.	Deep to water	Erodes easily, slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
Marlic-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Laric-----	Severe: slope, depth to rock.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
198: Torrifluvents, very cobble-----	Severe: seepage.	Severe: large stones, seepage.	Deep to water	Flooding, large stones, droughty.	Large stones, too sandy.	Large stones, too arid, droughty.
Torrifluvents, gravelly-----	Severe: seepage.	Severe: large stones, seepage.	Deep to water	Flooding, large stones, droughty.	Large stones, too sandy.	Large stones, too arid, droughty.
199: Haploxerolls sandy loam-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope, soil blowing.	Erodes easily, soil blowing.	Erodes easily.
Haploxerolls silt loam	Moderate: seepage, slope.	Severe: piping.	Deep to water	Erodes easily, slope.	Erodes easily	Erodes easily.
200: Malaga, cobble-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, too sandy.	Large stones, slope, too arid.
Malaga, stony-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, too sandy.	Large stones, slope, too arid.
201: Semal, cobble-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Cemented pan, large stones, slope.	Large stones, slope, too arid.
Semal, very cobble----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Cemented pan, large stones, slope.	Large stones, slope, too arid.
Semal, stony-----	Severe: seepage, slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Cemented pan, large stones, slope.	Large stones, slope, too arid.
202: Water.						
203: Pits-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock, droughty.	Slope, depth to rock.	Slope, depth to rock, droughty.
204: Dam.						
205: Arents.						
206: Burbank-----	Severe: seepage.	Severe: seepage.	Deep to water	Fast intake, soil blowing, droughty.	Large stones, too sandy, soil blowing.	Large stones, too arid, droughty.

Table 12.--Water Management--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
207: Rock Creek-----	Severe: slope, depth to rock.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
208: Kiona-----	Severe: slope.	Severe: large stones, seepage.	Deep to water	Large stones, slope, droughty.	Large stones, slope.	Large stones, slope, too arid.
209: Licksillet-----	Severe: slope, depth to rock.	Moderate: large stones, seepage, piping.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.
210: Starbuck-----	Severe: slope, depth to rock.	Severe: piping.	Deep to water	Slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
211: Starbuck-----	Severe: slope, depth to rock.	Severe: piping.	Deep to water	Slope, depth to rock.	Erodes easily, slope, depth to rock.	Erodes easily, slope, too arid.
Rock outcrop-----	Severe: slope, depth to rock.	Slight-----	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
212: Willis-----	Moderate: seepage, slope, depth to rock.	Severe: piping.	Deep to water	Cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, cemented pan.
213: Willis-----	Moderate: seepage, slope, depth to rock.	Severe: piping.	Deep to water	Cemented pan, slope.	Erodes easily, cemented pan.	Erodes easily, cemented pan.
214: Willis-----	Severe: slope.	Severe: piping.	Deep to water	Cemented pan, slope.	Erodes easily, cemented pan, slope.	Erodes easily, cemented pan, slope.
215: Bakeoven-----	Severe: slope, depth to rock.	Severe: large stones.	Deep to water	Large stones, slope, droughty.	Large stones, slope, depth to rock.	Large stones, slope, droughty.

Table 13.--Wheeled Vehicle Use

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
1: Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
2: Argabak-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
3: Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
4: Argabak-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily, slope.	Moderate: slope.
5: Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
6: Argabak-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily, slope.	Moderate: slope.
7: Argabak-----	Slight-----	Severe: excessive wetness.	Moderate: erodes easily.	Slight.
Camaspach-----	Slight-----	Severe: excessive wetness.	Moderate: erodes easily.	Slight.
8: Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Horseflat-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
9: Argabak-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Horseflat-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
10: Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
11: Argabak-----	Slight-----	Severe: excessive wetness.	Moderate: erodes easily.	Slight.
Whiskeydick----	Slight-----	Severe: excessive wetness.	Moderate: erodes easily.	Slight.
12: Argabak-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: slope.
Whiskeydick----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: slope.
13: Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Windry-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
14: Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Zen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Grinrod-----	Slight-----	Severe: erodes easily.	Moderate: erodes easily.	Slight.
15: Argabak-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Zen-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Grinrod-----	Moderate: slope.	Severe: slope, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
16: Argids-----	Moderate: soil blowing.	Moderate: slope.	Moderate: soil blowing.	Severe: soil blowing.
17: Argids-----	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope, soil blowing.
18: Argixerolls----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Durixerolls----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
19: Argixerolls----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Durixerolls----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
20: Benwy-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
21: Benwy-----	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.	Severe: dusty.
22: Benwy-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
23: Benwy-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
24: Benwy-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
24: Vantage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Argabak-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
25: Blint-----	Moderate: slope.	Severe: slope, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
26: Blint-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
27: Blint-----	Moderate: slope.	Severe: slope, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Windry-----	Moderate: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope, dusty.
28: Brehm-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
29: Brehm-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Gorksel-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Gorst-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
30: Caliralls-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
31: Caliralls-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
32: Caliralls-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
32: Clerf-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope.	Moderate: slope.
33: Caliralls-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Clerf-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
34: Caliralls-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Horseflat-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
35: Camaspach-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
36: Camaspach-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
37: Camaspach-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
38: Camaspach-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
39: Camaspach-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Colockum-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
40: Camaspatch-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Tanksel-----	Severe: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
41: Camaspatch-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Tanksel-----	Severe: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Lainand-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
42: Camaspatch-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Whiskeydick-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
43: Camaspatch-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Whiskeydick-----	Moderate: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope, dusty.
44: Camaspatch-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Whiskeydick-----	Severe: slope.	Severe: slope, excessive wetness.	Severe: slope.	Severe: slope.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
45: Camaspach-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Whiskeydick-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
46: Clerf-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
47: Clerf-----	Severe: slope.	Severe: slope, excessive wetness, eroded easily.	Severe: slope.	Severe: slope.
48: Colockum-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
49: Colockum-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
50: Colockum-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
51: Colockum-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Tronsen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
52: Disage-----	Slight-----	Severe: erodes easily, excessive wetness.	Moderate: erodes easily.	Slight.
53: Disage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
54: Disage-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily,	Severe: slope.	Severe: slope.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
55: Disage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Clenage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
56: Drino-----	Moderate: slope.	Severe: erodes easily, slope.	Severe: erodes easily.	Moderate: dusty.
57: Drino-----	Moderate: slope.	Severe: slope, erodes easily.	Severe: slope.	Moderate: slope.
58: Drino-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Disage-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Kiona-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
59: Drino-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Rubble land.				
Rock outcrop.				
60: Drino-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Rubble land.				
Rock outcrop.				
61: Drino-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
61: Schappy-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Fortyday-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
62: Drino-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope,	Severe: slope.
Schappy-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Fortyday-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
63: Drysel-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
64: Drysel-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
65: Durtash-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
66: Esquatzel-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
67: Esquatzel-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
68: Esquatzel-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Aquolls-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Slight.
Weirman-----	Slight-----	Severe: erodes easily.	Moderate: erodes easily.	Slight.
69: Esquatzel-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Weirman fine sandy loam-----	Slight-----	Severe: erodes easily.	Severe: erodes easily.	Moderate: soil blowing.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
69: Weirman very cobble sandy loam-----	Slight-----	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
70: Finley sandy loam-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Slight.
Finley cobble sandy loam----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Slight.
71: Fortyday-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Drino-----	Moderate: slope.	Severe: slope, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Nevo-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
72: Fortyday-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Drino-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Nevo-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
73: Fortyday-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Drino-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Schappy-----	Severe: slope, erodes easily.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope, dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
74: Fortyday-----	Slight-----	Severe: erodes easily.	Moderate: erodes easily.	Slight.
Nevo-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Rock outcrop.				
75: Fortyday-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Rubble land.				
Rock outcrop.				
76: Frint-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Gidwin-----	Severe: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Rubble land.				
77: Frint-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Hogranch-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
78: Frint-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Hogranch-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Gidwin-----	Severe: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
79: Gorskel silt loam-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
79: Gorskel cobbly loam-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
80: Gorst-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
81: Grinrod-----	Moderate: slope.	Severe: slope, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Horseflat-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
82: Grinrod-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Horseflat-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
83: Haploxeerolls---	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Orthents-----	Slight-----	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
Aquolls.				
84: Horseflat-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
85: Horseflat-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
86: Kiona-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
87: Kiona-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Rubble land.				

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
88: Lainand-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
89: Laric-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
90: Laric-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Zen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
91: Levnik-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Nosser-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Slight.
Nevo-----	Slight-----	Slight-----	Slight-----	Slight.
92: Malaga-----	Moderate: erodes easily.	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
93: Malaga-----	Moderate: erodes easily.	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
94: Manastash-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
95: Manastash-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
96: Manastash-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Durtash-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
97: Manastash-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Durtash-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
98:				
Manastash-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Meloza-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Slight.
Durtash-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: dusty.
99:				
Manastash-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Selah-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Gorst-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
100:				
Marlic-----	Severe: erodes easily.	Severe: excessive wetness, erodes easily.	Severe: erodes easily.	Severe: dusty.
Zen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Laric-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate erodes easily.	Slight.
101:				
Meloza-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Slight.
Roza-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Slight.
102:				
Meloza-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Slight.
Roza-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Slight.
103:				
Meloza-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Slight.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
103: Roza-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Slight.
104: Nack-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Opnish-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
105: Neppel-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Scoon-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
106: Nevo-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
107: Nevo-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Fortyday-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
108: Nevo very cobbly loam-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Nevo extremely gravelly sandy loam-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
109: Nevo very cobbly loam-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Nevo extremely gravelly sandy loam-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
110: Niben-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Vantage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Benwy-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
111: Norod-----	Moderate: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: dusty.
Horseflat-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
112: Norod-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Horseflat-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
113: Norod-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Horseflat-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
114: Norod-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Moderate: dusty.
Ralock-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: dusty.
Horseflat-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
115:				
Norod-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Ralock-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Horseflat-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
116:				
Norod-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Ralock-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Horseflat-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
117:				
Norod-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Rubble land.				
118:				
Nosser-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
Levnik-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
119:				
Nosser-----	Moderate: slope, erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: slope, dusty.
Levnik-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
120:				
Palerf-----	Moderate: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: erodes easily.	Moderate: slope, dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
120: Ralock-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Vantage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope, dusty.
121: Palerf-----	Moderate: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: erodes easily.	Moderate: slope, dusty.
Vantage-----	Moderate: slope.	Severe: slope, excessive wetness.	Moderate: slope, erodes easily.	Moderate: slope, dusty.
122: Palixerolls----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: dusty.
Patron-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
123: Patron-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Camaspach-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
124: Prosser-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
125: Prosser-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Nevo-----	Slight-----	Severe: excessive wetness.	Moderate: erodes easily.	Slight.
126: Ralock-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
127: Ralock-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
128: Ralock-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Horseflat-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope, dusty.
129: Ralock-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Palerf-----	Severe: erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: erodes easily.	Moderate: slope, dusty.
130: Ralock-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Palerf-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
131: Rock outcrop.				
132: Rollinger-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
133: Rollinger-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
134: Rollinger-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
135: Rollinger-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
136: Rollinger-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
137: Rubble land.				
Rock outcrop.				

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
138: Rubble land.  Rock outcrop.				
Kiona-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
139: Sagehill-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Burbank-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Malaga-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
140: Scooon-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
141: Selah-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
142: Selah-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
143: Selah-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
144: Selah-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
145: Selah-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
146: Schappy-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Fortyday-----	Moderate: erodes easily.	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: dusty.
147: Schappy-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
147: Fortyday-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
148: Schappy-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Fortyday-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
149: Starbuck-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: soil blowing.
Rock outcrop.				
150: Tankssel-----	Severe: erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: erodes easily.	Moderate: slope, dusty.
Patron-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: slope, dusty.
Camaspach-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
151: Tankssel-----	Severe: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Patron-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Camaspach-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
152: Tankssel-----	Severe: erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: erodes easily.	Severe: dusty.
Wockum-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
153:				
Tanksel-----	Severe: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Wockum-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
154:				
Tanksel-----	Severe: slope, erodes easily.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Wockum-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
155:				
Terlan-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
156:				
Terlan-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
157:				
Terlan-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Durtash-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
Selah-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
158:				
Terlan-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Durtash-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
Selah-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
159:				
Timmerman sandy loam-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: soil blowing.
Timmerman loamy sand-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: soil blowing.
160:				
Tronsen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
161: Tronsen-----	Severe: erodes easily.	Severe: slope, erodes easily	Severe: erodes easily.	Moderate: slope, dusty.
162: Vantage-----	Slight-----	Moderate: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
163: Vantage-----	Slight-----	Severe: slope, erodes easily.	Moderate: erodes easily.	Slight.
164: Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
165: Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
166: Vantage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
167: Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Benwy-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Argabak-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
168: Vantage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: slope.
Benwy-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
Argabak-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
169: Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Clerf-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: dusty.
170: Vantage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: slope.
Clerf-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: slope.
171: Vantage-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Clerf-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
172: Vantage-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Clerf-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Rubble land.				
173: Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Niben-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Clerf-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
174: Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
174: Vantage, thin---	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
175: Vantage-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
Vantage, thin---	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
176: Vantage-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: slope.
Vantage, thin---	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: slope.
177: Wanapum-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
178: Wanapum loam---	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Wanapum cobbly loam-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
179: Wanapum loam---	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Wanapum cobbly loam-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
180: Whiskeydick----	Moderate: slope.	Severe: excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
181: Whiskeydick----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
182:				
Whiskeydick-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: erodes easily.	Moderate: slope.
Tronsen-----	Moderate: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: slope, dusty.
Camaspatch-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
183:				
Whiskeydick-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Tronsen-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Camaspatch-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
184:				
Whiskeydick-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
Tronsen-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Camaspatch-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
185:				
Winchester-----	Moderate: slope, erodes easily, soil blowing.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: soil blowing.
Sagehill-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: soil blowing.
Burbank-----	Moderate: slope, soil blowing.	Severe: slope, erodes easily.	Moderate: slope.	Moderate: slope, soil blowing.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
186: Wipple-----	Moderate: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Moderate: dusty.
187: Wipple-----	Moderate: slope.	Severe: slope, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
188: Wipple-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
189: Wockum-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.
190: Wockum-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
191: Wockum-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Blint-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
192: Wockum-----	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, erodes easily.	Severe: slope, dusty.
Blint-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
Windry-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope.	Severe: slope.
193: Zen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
194: Zen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
195: Zen-----	Severe: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Severe: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
196:				
Zen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Benwy-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Laric-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
197:				
Zen-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Marlic-----	Severe: erodes easily.	Severe: excessive wetness, erodes easily.	Severe: erodes easily.	Severe: dusty.
Laric-----	Slight-----	Severe: excessive wetness, erodes easily.	Moderate: erodes easily.	Slight.
198:				
Torrifluvents, very cobbly----	Slight-----	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
Torrifluvents, gravelly-----	Slight-----	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
199:				
Haploxerolls sandy loam----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
Haploxerolls silt loam-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
200:				
Malaga, cobbly--	Moderate: erodes easily.	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
Malaga, stony---	Moderate: erodes easily.	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
201:				
Semal, cobbly---	Moderate: erodes easily.	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
Semal, very cobbly-----	Moderate: erodes easily.	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.
Semal, stony----	Moderate: erodes easily.	Severe: erodes easily.	Moderate: erodes easily.	Moderate: soil blowing.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
202: Water.				
203: Pits.				
204: Dam.				
205: Arents-----	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.
206: Burbank-----	Moderate: erodes easily.	Severe: slope, erodes easily.	Severe: erodes easily.	Moderate: dusty.
207: Rock Creek-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
208: Kiona-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
209: Lickskillet-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
210: Starbuck-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.
Rock outcrop.				
211: Starbuck-----	Severe: slope.	Severe: slope, excessive wetness, erodes easily.	Severe: slope, erodes easily.	Severe: slope.
Rock outcrop.				
212: Willis-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
213: Willis-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.

Table 13.--Wheeled Vehicle Use--Continued

Map symbol and soil name	Soil moisture condition			
	Slightly moist (Oct-Dec)	Wet (Jan-March)	Moderately moist (April-June)	Moderately dry (July-Sept)
214: Willis-----	Severe: erodes easily.	Severe: erodes easily.	Severe: erodes easily.	Severe: dusty.
215: Bakeoven-----	Moderate: slope.	Severe: slope, excessive wetness, erodes easily.	Moderate: slope, erodes easily.	Moderate: slope.

Table 14.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
1: Argabak-----	0-2	Very cobbly loam.	GC-GM, GC, SC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
2: Argabak-----	0-2	Very cobbly loam.	GC-GM, GC, SC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
3: Argabak-----	0-2	Extremely cobbly loam.	GC, GC-GM, SC-SM, SC	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
4: Argabak-----	0-2	Extremely cobble loam.	GC-GM, GC, SC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
5: Argabak-----	0-2	Very stony loam	GC-GM, SC, GC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
6: Argabak-----	0-2	Very stony loam	GC-GM, GC, SC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
7: Argabak-----	0-2	Very cobbly loam.	GC, SC-SM, GC-GM, SC	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-6	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	6-14	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	14-18	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
8: Argabak-----	0-2	Very cobbly loam.	GC-GM, GC, SC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
8: Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-2, A-6	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
9: Argabak-----	0-2	Very cobbly loam.	GC-GM, SC, GC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-2, A-6	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
10: Argabak-----	0-2	Very cobbly loam.	GC-GM, GC, SC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
11: Argabak-----	0-2	Extremely cobbly loam.	GC, GC-GM, SC-SM, SC	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
11: Whiskeydick-----	In				Pct	Pct					Pct	
	0-4	Very cobbly loam.	GC, GC-GM, SC-SM	A-2, A-4, A-6	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-15
	4-11	Very cobbly clay loam, very gravelly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	11-22	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	22-26	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
12: Argabak-----	0-2	Extremely cobbly loam.	GC, GC-GM, SC-SM, SC	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Whiskeydick-----	0-4	Very cobbly loam.	GC, GC-GM, SC-SM	A-2, A-6, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-15
	4-11	Very cobbly clay loam, very gravelly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	11-22	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	22-26	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
13: Argabak-----	0-2	Very cobbly loam.	GC-GM, SC, GC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Windry-----	0-3	Very cobbly loam.	GC-GM	A-4	0-10	30-50	50-75	45-70	40-65	35-60	25-30	5-10
	3-7	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM	A-2, A-4	0-10	10-30	50-70	35-60	35-55	30-50	25-30	5-10
	7-15	Extremely gravelly clay loam, extremely cobbly clay loam, very cobbly loam.	GC, GM	A-2, A-7, A-6	0-10	20-60	35-60	25-55	20-50	15-45	30-40	10-20
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
14: Argabak-----	0-2	Very cobbly loam.	GC, GC-GM, SC-SM, SC	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
14: Zen-----	0-10	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-22	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	22-27	Silt loam, clay loam, gravelly loam.	CL, SC, SC-SM	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	27-31	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Grinrod-----	0-4	Very cobbly loam.	GC, GC-GM	A-2, A-4	0-10	30-45	45-70	35-60	25-55	25-45	25-30	5-10
	4-11	Very gravelly loam.	GC, GC-GM	A-2, A-4	0-5	5-30	50-65	40-55	30-45	20-40	25-30	5-10
	11-25	Very gravelly loam, extremely gravelly loam, extremely cobbly clay loam.	GC	A-1, A-2	0-10	10-50	30-60	25-55	15-45	15-35	30-40	5-15
	25-29	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
15: Argabak-----	0-2	Very cobbly loam.	GC-GM, GC, SC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
15: Zen-----	0-10	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-22	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	22-27	Silt loam, clay loam, gravelly loam.	SC, CL, SC-SM	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	27-31	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Grinrod-----	0-4	Very cobbly loam.	GC, GC-GM	A-2, A-4	0-10	30-45	45-70	35-60	25-55	25-45	25-30	5-10
	4-11	Very gravelly loam.	GC, GC-GM	A-2, A-4	0-5	5-30	50-65	40-55	30-45	20-40	25-30	5-10
	11-25	Very gravelly loam, extremely gravelly loam, extremely cobbly clay loam.	GC	A-1, A-2	0-10	10-50	30-60	25-55	15-45	15-35	30-40	5-15
	25-29	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
16: Argids-----	0-4	Gravelly loamy sand.	SM	A-1, A-2	0	0-5	60-85	50-75	30-55	10-35	---	NP
	4-24	Cobbly sandy clay loam, very cobbly sandy clay loam, gravelly sandy clay loam.	GC, SC	A-2, A-6	0-10	5-35	60-85	50-75	35-60	25-45	25-35	10-15
	24-60	Very cobbly loamy sand, very cobbly sand, very gravelly sand.	SM, SP-SM	A-1	0-25	5-40	60-75	50-65	15-40	5-25	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
17: Argids-----	0-10	Sandy loam-----	SM	A-4	0	0-5	90-100	80-95	60-75	35-45	20-30	NP-5
	10-35	Cobbly sandy clay loam, very cobbly sandy clay loam, gravelly sandy clay loam.	GC, SC	A-2, A-6	0-10	5-35	60-85	50-75	35-60	25-45	25-35	10-15
	35-60	Very cobbly loamy sand, very cobbly sand, very gravelly sand.	SM, SP-SM	A-1	0-25	5-40	60-75	50-65	15-40	5-25	---	NP
18: Argixerolls-----	0-15	Silt loam-----	CL	A-6	0	0	85-95	75-90	65-85	50-70	25-35	10-15
	15-43	Silty clay loam, clay loam.	CL	A-6, A-7	0	0-5	85-95	75-90	65-85	50-80	35-50	10-20
	43-60	Clay, very gravelly clay loam, gravelly clay loam.	GC, CL, SC	A-2, A-7	0-10	0-15	50-90	40-80	30-70	25-60	40-55	20-30
Durixerolls-----	0-9	Very gravelly loam.	GC, SC	A-2, A-6	0-5	0-25	55-70	45-60	35-50	25-45	25-35	10-15
	9-12	Gravelly clay loam, very gravelly loam, very gravelly clay loam.	GC, SM, GM, SC	A-6, A-2, A-7	0-5	0-25	55-75	45-65	35-55	25-45	30-50	10-20
	12-21	Very gravelly loam, very gravelly clay loam, extremely gravelly loam.	GC, GM	A-2	0-10	10-35	40-65	30-55	20-45	15-35	30-50	10-20
	21-31	Indurated-----	---	---	0	0	---	---	---	---	---	---
	31-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In			Pct	Pct					Pct
19: Argixerolls-----	0-6	Cobbly clay loam.	CL	A-6, A-7	0-10	10-25	80-100	75-90	60-75	50-60	35-45	10-20
	6-60	Clay, very gravelly clay loam, gravelly clay loam.	GC, CL, SC	A-2, A-7	0-10	0-15	50-90	40-80	30-70	25-60	40-55	20-30
Durixerolls-----	0-6	Cobbly clay loam.	CL	A-6	0-10	5-20	85-95	75-90	65-80	50-70	30-40	15-20
	6-14	Gravelly clay loam, very gravelly loam, very gravelly clay loam.	GC, GM, SM, SC	A-2, A-6, A-7	0-5	0-25	55-75	45-65	35-55	25-45	30-50	10-20
	14-23	Very gravelly loam, very gravelly clay loam, extremely gravelly loam.	GC, GM	A-2	0-10	10-35	40-65	30-55	20-45	15-35	30-50	10-20
	23-33	Indurated-----	---	---	0	0	---	---	---	---	---	---
	33-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
20: Benwy-----	0-4	Silt loam-----	CL-ML, ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	4-10	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-25	NP-5
	10-37	Clay loam, silt loam, loam.	CL, CL-ML	A-4, A-6	0	0	85-95	80-95	70-85	60-75	25-35	5-15
	37-60	Gravelly loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-100	65-95	55-85	50-75	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
21: Benwy-----	0-4	Silt loam-----	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	4-9	Silt loam, loam	ML	A-4	0	0	90-100	85-100	75-90	65-80	20-25	NP-5
	9-14	Silt loam, loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-90	65-80	25-35	5-15
	14-33	Gravelly silt loam, gravelly loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-100	70-95	60-85	50-75	25-35	5-15
	33-45	Gravelly silt loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-95	65-90	55-80	50-70	25-35	5-15
	45-49	Indurated-----	---	---	0	0	---	---	---	---	---	---
22: Benwy-----	0-4	Silt loam-----	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	4-9	Silt loam, loam	ML	A-4	0	0	90-100	85-100	75-90	65-80	20-25	NP-5
	9-14	Silt loam, loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-90	65-80	25-35	5-15
	14-33	Gravelly silt loam, gravelly loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-100	70-95	60-85	50-75	25-35	5-15
	33-45	Gravelly silt loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-95	65-90	55-80	50-70	25-35	5-15
	45-49	Indurated-----	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
23: Benwy-----	0-4	Silt loam-----	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	4-9	Silt loam, loam	ML	A-4	0	0	90-100	85-100	75-90	65-80	20-25	NP-5
	9-14	Silt loam, loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-90	65-80	25-35	5-15
	14-33	Gravelly silt loam, gravelly loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-100	70-95	60-85	50-75	25-35	5-15
	33-45	Gravelly silt loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-95	65-90	55-80	50-70	25-35	5-15
	45-49	Indurated-----	---	---	0	0	---	---	---	---	---	---
Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Argabak-----	0-2	Very cobbly loam.	GC-GM, SC, GC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
24: Benwy-----	0-4	Silt loam-----	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	4-9	Silt loam, loam	ML	A-4	0	0	90-100	85-100	75-90	65-80	20-25	NP-5
	9-14	Silt loam, loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-90	65-80	25-35	5-15
	14-33	Gravelly silt loam, gravelly loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-100	70-95	60-85	50-75	25-35	5-15
	33-45	Gravelly silt loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-95	65-90	55-80	50-70	25-35	5-15
	45-49	Indurated-----	---	---	0	0	---	---	---	---	---	---
Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Argabak-----	0-2	Very cobbly loam.	GC, GC-GM, SC-SM, SC	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct						Pct
25: Blint-----	0-6	Very cobbly loam.	GC-GM, GM	A-4	0-10	30-40	60-75	50-65	45-60	40-50	20-30	NP-5
	6-14	Very gravelly loam, very gravelly silt loam.	GC-GM, GM	A-2	0-10	5-25	45-55	35-45	30-40	20-35	20-30	NP-5
	14-22	Very gravelly loam, very gravelly silt loam.	GC	A-2	0-10	5-25	45-55	35-45	30-40	20-35	30-40	10-15
	22-37	Extremely gravelly loam, extremely cobbly silt loam, very cobbly clay loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	37-41	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
26: Blint-----	0-6	Very cobbly loam.	GC-GM, GM	A-4	0-10	30-40	60-75	50-65	45-60	40-50	20-30	NP-5
	6-14	Very gravelly loam, very gravelly silt loam.	GC-GM, GM	A-2	0-10	5-25	45-55	35-45	30-40	20-35	20-30	NP-5
	14-22	Very gravelly loam, very gravelly silt loam.	GC	A-2	0-10	5-25	45-55	35-45	30-40	20-35	30-40	10-15
	22-37	Extremely gravelly loam, extremely cobbly silt loam, very cobbly clay loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	37-41	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
27: Blint-----	0-6	Very cobbly loam.	GC-GM, GM	A-4	0-10	30-40	60-75	50-65	45-60	40-50	20-30	NP-5
	6-14	Very gravelly loam, very gravelly silt loam.	GC-GM, GM	A-2	0-10	5-25	45-55	35-45	30-40	20-35	20-30	NP-5
	14-22	Very gravelly loam, very gravelly silt loam.	GC	A-2	0-10	5-25	45-55	35-45	30-40	20-35	30-40	10-15
	22-37	Extremely gravelly loam, extremely cobbly silt loam, very cobbly clay loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	37-41	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Windry-----	0-3	Very cobbly loam.	GC-GM	A-4	0-10	30-50	50-75	45-70	40-65	35-60	25-30	5-10
	3-7	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM	A-2, A-4	0-10	10-30	50-70	35-60	35-55	30-50	25-30	5-10
	7-15	Extremely gravelly clay loam, extremely cobbly clay loam, very cobbly loam.	GC, GM	A-6, A-2, A-7	0-10	20-60	35-60	25-55	20-50	15-45	30-40	10-20
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
28: Brehm-----	In											
	0-4	Silt loam-----	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	4-10	Silt loam, loam	CL, CL-ML	A-4	0-5	0-10	90-100	80-90	70-80	55-70	25-30	5-10
	10-24	Very cobbly clay loam, very cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	20-40	55-70	45-65	35-55	25-45	30-40	10-20
	24-34	Indurated-----	---	---	0	0	---	---	---	---	---	---
	34-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
29: Brehm-----	In											
	0-4	Silt loam-----	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	4-10	Silt loam, loam	CL, CL-ML	A-4	0-5	0-10	90-100	80-90	70-80	55-70	25-30	5-10
	10-24	Very cobbly clay loam, very cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	20-40	55-70	45-65	35-55	25-45	30-40	10-20
	24-34	Indurated-----	---	---	0	0	---	---	---	---	---	---
	34-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
29: Gorskel-----	0-5	Silt loam-----	CL, CL-ML	A-4	0	0	100	90-100	80-90	60-85	20-25	5-10
	5-10	Gravelly silt loam, cobbly loam, very gravelly loam.	GC	A-2, A-4	0	0-20	60-70	50-65	45-55	40-50	30-35	10-15
	10-16	Very gravelly loam, very gravelly clay loam, very cobbly clay loam.	GC, SC	A-2, A-6	0-10	20-35	55-65	45-60	35-45	25-40	30-40	10-20
	16-26	Indurated-----	---	---	0	0	---	---	---	---	---	---
	26-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
Gorst-----	0-6	Loam-----	CL-ML	A-4	0	0-5	95-100	95-100	80-95	60-75	20-25	5-10
	6-14	Loam, silt loam, gravelly loam.	CL	A-6	0	0-5	90-100	65-95	60-90	50-70	25-35	10-15
	14-24	Indurated-----	---	---	0	0	---	---	---	---	---	---
	24-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
30: Caliralls-----	0-8	Silt loam-----	CL, CL-ML	A-4	0-5	0-5	90-100	80-90	65-80	55-65	20-25	5-10
	8-30	Gravelly silt loam, gravelly clay loam, silt loam.	CL	A-6	0-5	0-15	75-100	65-90	60-80	50-65	20-40	10-20
	30-42	Gravelly silt loam, gravelly clay loam.	SC	A-6	0-5	5-20	70-80	60-70	45-60	35-50	30-40	10-20
	42-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam.	GC	A-2	0-5	0-25	40-65	35-60	25-45	20-35	30-45	10-20
31: Caliralls-----	0-8	Silt loam-----	CL, CL-ML	A-4	0-5	0-5	90-100	80-90	65-80	55-65	20-25	5-10
	8-30	Gravelly silt loam, gravelly clay loam, silt loam.	CL	A-6	0-5	0-15	75-100	65-90	60-80	50-65	20-40	10-20
	30-42	Gravelly silt loam, gravelly clay loam.	SC	A-6	0-5	5-20	70-80	60-70	45-60	35-50	30-40	10-20
	42-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam.	GC	A-2	0-5	0-25	40-65	35-60	25-45	20-35	30-45	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
32: Caliralls-----	In				Pct	Pct					Pct	
	0-8	Silt loam-----	CL, CL-ML	A-4	0-5	0-5	90-100	80-90	65-80	55-65	20-25	5-10
	8-30	Gravelly silt loam, gravelly clay loam, silt loam.	CL	A-6	0-5	0-15	75-100	65-90	60-80	50-65	20-40	10-20
	30-42	Gravelly silt loam, gravelly clay loam.	SC	A-6	0-5	5-20	70-80	60-70	45-60	35-50	30-40	10-20
	42-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam.	GC	A-2	0-5	0-25	40-65	35-60	25-45	20-35	30-45	10-20
Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	6-12	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	12-24	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	24-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
33: Caliralls-----	0-8	Silt loam-----	CL, CL-ML	A-4	0-5	0-5	90-100	80-90	65-80	55-65	20-25	5-10
	8-30	Gravelly silt loam, gravelly clay loam, silt loam.	CL	A-6	0-5	0-15	75-100	65-90	60-80	50-65	20-40	10-20
	30-42	Gravelly silt loam, gravelly clay loam.	SC	A-6	0-5	5-20	70-80	60-70	45-60	35-50	30-40	10-20
	42-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam.	GC	A-2	0-5	0-25	40-65	35-60	25-45	20-35	30-45	10-20
Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	6-12	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	12-24	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	24-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
34: Caliralls-----	0-8	Silt loam-----	CL, CL-ML	A-4	0-5	0-5	90-100	80-90	65-80	55-65	20-25	5-10
	8-30	Gravelly silt loam, gravelly clay loam, silt loam.	CL	A-6	0-5	0-15	75-100	65-90	60-80	50-65	20-40	10-20
	30-42	Gravelly silt loam, gravelly clay loam.	SC	A-6	0-5	5-20	70-80	60-70	45-60	35-50	30-40	10-20
	42-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam.	GC	A-2	0-5	0-25	40-65	35-60	25-45	20-35	30-45	10-20
Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-6, A-2	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
35: Camaspatch-----	In											
	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
36: Camaspatch-----	In											
	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
37: Camaspatch-----	In				Pct	Pct						Pct
	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-5	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	5-13	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	13-17	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
38: Camaspatch-----	In				Pct	Pct						Pct
	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-5	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	5-13	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	13-17	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
39: Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Colockum-----	0-4	Silt loam-----	CL-ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-30	5-10
	4-33	Silt loam, silty clay loam, loam.	CL	A-6	0	0-5	95-100	95-100	85-95	75-85	30-40	10-20
	33-60	Silty clay loam, gravelly loam, cobbly silty clay loam.	CL	A-6	0	5-25	90-100	70-90	60-80	60-80	30-40	10-20
40: Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
40: Tansel-----	0-4	Loam-----	ML	A-4	0-10	0-10	85-100	80-90	70-85	65-80	20-30	NP-5
	4-12	Gravelly loam, loam, silt loam.	ML	A-4	0-10	0-10	75-95	65-85	60-80	55-75	20-30	NP-5
	12-22	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7	0-10	10-40	50-65	45-60	40-55	35-50	35-45	15-25
	22-34	Extremely cobbly clay loam, very gravelly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-50	30-60	20-50	15-45	10-35	45-55	20-30
	34-38	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
41: Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
41: Tansel-----	0-4	Stony silt loam	ML	A-4	5-10	5-10	80-100	70-90	65-85	60-80	20-30	NP-5
	4-11	Gravelly loam, loam, silt loam.	ML	A-4	0-10	0-10	75-95	65-85	60-80	55-75	20-30	NP-5
	11-23	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7	0-10	10-40	50-65	45-60	40-55	35-50	35-45	15-25
	23-30	Extremely cobbly clay loam, very gravelly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-50	30-60	20-50	15-45	10-35	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Lainand-----	0-4	Gravelly loam	GC, SM	A-4	0	5-10	55-85	50-75	45-65	35-50	20-30	NP-5
	4-22	Very gravelly loam, very cobbly loam.	GM	A-2, A-6	0-10	5-40	40-70	35-55	30-50	25-50	35-40	15-20
	22-43	Extremely cobbly clay loam, extremely gravelly clay loam, extremely cobbly loam.	GC	A-2, A-6	0-10	15-65	40-60	20-60	15-55	10-50	35-40	15-20
	43-47	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
	<i>In</i>											
42: Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Whiskeydick-----	0-4	Very cobbly loam.	GC, GC-GM, SC-SM	A-2, A-4, A-6	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-15
	4-11	Very cobbly clay loam, very gravelly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	11-22	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	22-26	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
43: Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Whiskeydick-----	0-4	Very cobbly loam.	GC-GM, SC-SM	A-2, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	10-30	Extremely cobbly clay, very cobbly clay, very gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
44: Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Whiskeydick-----	0-4	Very cobbly loam.	GC-GM, SC-SM	A-2, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	10-30	Extremely cobbly clay, very cobbly clay, very gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
45: Camaspatch-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Whiskeydick-----	0-4	Very cobbly loam.	GC-GM, SC-SM	A-2, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	10-30	Extremely cobbly clay, very cobbly clay, very gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct						Pct
46: Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	6-12	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	12-24	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	24-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
47: Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	6-12	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	12-24	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	24-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
48: Colockum-----	0-4	Silt loam-----	CL-ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-30	5-10
	4-33	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	95-100	85-95	75-85	30-40	10-20
	33-60	Silty clay loam, gravelly loam, cobbly silty clay loam.	CL	A-6	0	5-25	90-100	70-90	60-80	60-80	30-40	10-20
49: Colockum-----	0-4	Silt loam-----	CL-ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-30	5-10
	4-33	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	95-100	85-95	75-85	30-40	10-20
	33-60	Silty clay loam, gravelly loam, cobbly silty clay loam.	CL	A-6	0	5-25	90-100	70-90	60-80	60-80	30-40	10-20
50: Colockum-----	0-4	Silt loam-----	CL-ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-30	5-10
	4-33	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	95-100	85-95	75-85	30-40	10-20
	33-60	Silty clay loam, gravelly loam, cobbly silty clay loam.	CL	A-6	0	5-25	90-100	70-90	60-80	60-80	30-40	10-20
51: Colockum-----	0-4	Silt loam-----	CL-ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-30	5-10
	4-33	Silt loam, silty clay loam, loam.	CL	A-6	0	0-5	95-100	95-100	85-95	75-85	30-40	10-20
	33-60	Silty clay loam, gravelly loam, cobbly silty clay loam.	CL	A-6	0	5-25	90-100	70-90	60-80	60-80	30-40	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
51: Tronsen-----	0-7	Stony loam-----	ML, SC-SM, CL-ML, SM	A-4	5-10	10-20	80-90	70-80	55-75	40-70	20-30	NP-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	18-25	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	25-60	Extremely gravelly clay loam, very cobbly clay, very cobbly clay loam.	GC	A-2, A-7	0-10	10-30	25-60	25-50	20-45	20-40	40-50	15-25
52: Disage-----	0-4	Very cobbly loam.	GC, SC	A-6	0-10	30-45	60-75	50-65	40-55	35-45	25-30	10-15
	4-9	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	5-40	50-70	40-60	30-50	25-45	40-50	15-20
	9-18	Very cobbly clay, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	20-60	35-60	25-55	15-45	15-40	40-60	15-30
	18-22	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
53: Disage-----	0-4	Very cobbly loam.	GC, SC	A-6	0-10	30-45	60-75	50-65	40-55	35-45	25-30	10-15
	4-9	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	5-40	50-70	40-60	30-50	25-45	40-50	15-20
	9-18	Very cobbly clay, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	20-60	35-60	25-55	15-45	15-40	40-60	15-30
	18-22	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
54: Disage-----	0-4	Very stony loam.	GC, SC	A-6	10-25	20-30	50-70	40-60	35-55	35-45	25-30	10-15
	4-9	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	5-40	50-70	40-60	30-50	25-45	40-50	15-20
	9-18	Very cobbly clay, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	20-60	35-60	25-55	15-45	15-40	40-60	15-30
	18-22	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
55: Disage-----	In				Pct	Pct						Pct
	0-4	Very cobbly loam.	GC, SC	A-6	0-10	30-45	60-75	50-65	40-55	35-45	25-30	10-15
	4-9	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	5-40	50-70	40-60	30-50	25-45	40-50	15-20
	9-18	Very cobbly clay, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	20-60	35-60	25-55	15-45	15-40	40-60	15-30
	18-22	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Clenage-----	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-5	0-25	50-75	40-55	30-45	20-40	25-30	10-15
	3-16	Gravelly clay loam, very gravelly clay loam.	GC, SC	A-2, A-7, A-6	0-5	0-25	55-85	45-75	35-65	25-50	35-45	15-20
	16-25	Very gravelly clay, extremely gravelly clay, extremely cobbly clay.	GC	A-2, A-7	0-10	20-60	35-60	25-55	15-45	15-40	50-60	20-30
	25-29	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
56: Drino-----	0-3	Cobbly loam----	CL-ML, ML	A-4	0-5	15-35	80-90	70-80	65-75	60-70	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-65	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
57: Drino-----	0-3	Very stony loam	GM, SC-SM, GC-GM, SM	A-2, A-4	10-25	20-30	50-70	40-60	35-55	25-45	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-65	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
58: Drino-----	0-3	Very cobbly loam.	GM, SC-SM, GC-GM, SM	A-2, A-4	0-10	35-45	50-70	35-60	35-55	25-45	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-65	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Disage-----	0-4	Very cobbly loam.	GC, SC	A-6	0-10	30-45	60-75	50-65	40-55	35-45	25-30	10-15
	4-9	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	5-40	50-70	40-60	30-50	25-45	40-50	15-20
	9-18	Very cobbly clay, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	20-60	35-60	25-55	15-45	15-40	40-60	15-30
	18-22	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
58: Kiona-----	0-4	Very cobbly loam.	GM	A-4	0-10	25-40	55-75	45-65	35-50	30-45	20-30	NP-5
	4-21	Cobbly silt loam, very cobbly loam, very gravelly loam.	GM, ML, SM	A-4	0-10	15-30	60-90	45-80	45-75	35-70	20-30	NP-5
	21-60	Extremely cobbly loam, extremely gravelly loam, very cobbly silt loam.	GM	A-1, A-4	0-10	15-40	35-60	25-50	20-45	15-40	20-30	NP-5
59: Drino-----	0-3	Very stony loam	GC-GM, SM, GM, SC-SM	A-2, A-4	10-25	20-30	50-70	40-60	35-55	25-45	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-65	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP
Rock outcrop----	0-60	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
60: Drino-----	0-3	Very stony loam	GM, GC-GM, SC-SM, SM	A-2, A-4	10-25	20-30	50-70	40-60	35-55	25-45	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-65	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP
Rock outcrop----	0-60	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
61: Drino-----	0-3	Cobbly loam----	CL-ML, ML	A-4	0-5	15-35	80-90	70-80	65-75	60-70	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-65	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
61: Sohappy-----	0-4	Silt loam-----	ML	A-4	0	0	100	100	90-100	75-90	15-25	NP-5
	4-17	Silt loam, loam	ML	A-4	0	0	95-100	90-100	85-100	55-90	20-25	NP-5
	17-41	Gravelly silt loam, cobbly silt loam, cobbly loam.	ML	A-4	0	10-20	75-90	70-85	50-75	35-70	15-25	5-10
	41-47	Extremely cobbly clay loam, very cobbly loam.	GM	A-1, A-2	0-10	20-45	30-60	25-55	20-45	15-35	25-35	5-15
	47-51	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Fortyday-----	0-4	Cobbly loam----	CL, CL-ML	A-4	0-10	10-30	70-95	60-80	55-75	50-65	20-30	5-10
	4-9	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	9-17	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
62: Drino-----	0-3	Cobbly loam----	CL-ML, ML	A-4	0-5	15-35	80-90	70-80	65-75	60-70	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-65	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
62: Sohappy-----	0-4	Silt loam-----	ML	A-4	0	0	100	100	90-100	75-90	15-25	NP-5
	4-17	Silt loam, loam	ML	A-4	0	0	95-100	90-100	85-100	55-90	20-25	NP-5
	17-41	Gravelly silt loam, cobbly silt loam, cobbly loam.	ML	A-4	0	10-20	75-90	70-85	50-75	35-70	15-25	5-10
	41-47	Extremely cobbly clay loam, very cobbly loam.	GM	A-1, A-2	0-10	20-45	30-60	25-55	20-45	15-35	25-35	5-15
	47-51	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Fortyday-----	0-4	Cobbly loam----	CL, CL-ML	A-4	0-10	10-30	70-95	60-80	55-75	50-65	20-30	5-10
	4-9	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	9-17	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
63: Drysel-----	0-11	Loam-----	ML	A-4	0	0	100	90-100	90-100	70-90	20-25	NP-5
	11-27	Silt loam, silty clay loam, loam.	CL	A-6	0	0-5	100	90-100	85-95	65-85	30-40	10-20
	27-31	Clay loam, gravelly clay loam, loam.	GC, CL, SC	A-6	0	0-10	65-95	55-90	50-85	45-70	30-40	10-20
	31-41	Indurated-----	---	---	0	0	---	---	---	---	---	---
	41-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
64: Drysel-----	0-11	Loam-----	ML	A-4	0	0	100	90-100	90-100	70-90	20-25	NP-5
	11-27	Silt loam, silty clay loam, loam.	CL	A-6	0	0-5	100	90-100	85-95	65-85	30-40	10-20
	27-31	Clay loam, gravelly clay loam, loam.	CL, SC, GC	A-6	0	0-10	65-95	55-90	50-85	45-70	30-40	10-20
	31-41	Indurated-----	---	---	0	0	---	---	---	---	---	---
	41-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
65: Durtash-----	0-7	Loam-----	CL	A-6	0	0-5	80-95	75-90	70-85	60-80	25-35	10-15
	7-14	Very gravelly clay loam.	GC	A-2	0	0-25	40-65	35-50	25-50	20-50	40-50	15-25
	14-19	Extremely gravelly clay, very gravelly clay.	GC	A-2	0-10	10-40	30-55	25-45	15-35	5-30	50-60	20-30
	19-29	Indurated-----	---	---	0	0	---	---	---	---	---	---
	29-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
66: Esquatzel-----	0-10	Silt loam-----	ML	A-4	0	0	100	100	95-100	75-90	---	NP
	10-40	Silt loam-----	ML	A-4	0	0	100	100	85-100	75-95	20-30	NP-5
	40-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	0	100	100	95-100	60-90	20-30	NP-5
67: Esquatzel-----	0-10	Silt loam-----	ML	A-4	0	0	100	100	95-100	75-90	---	NP
	10-40	Silt loam-----	ML	A-4	0	0	100	100	85-100	75-95	20-30	NP-5
	40-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	0	100	100	95-100	60-90	20-30	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
68: Esquatzel-----	0-10	Silt loam-----	ML	A-4	0	0	100	100	95-100	75-90	---	NP
	10-44	Silt loam-----	ML	A-4	0	0	100	100	85-100	75-95	20-30	NP-5
	44-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	0	100	100	95-100	60-90	20-30	NP-5
Aquolls-----	0-6	Cobbly fine sandy loam.	ML, SM	A-4	0-5	20-30	80-95	70-85	50-75	45-60	20-30	NP-5
	6-10	Gravelly sandy loam, very cobbly sandy loam, very gravelly loam.	GM, ML, SM	A-1, A-4, A-2	0-5	0-40	45-85	40-75	25-65	15-55	20-30	NP-5
	10-20	Extremely gravelly sandy loam, very gravelly sandy loam, gravelly loam.	ML, GM, SM	A-2, A-1, A-4	0-5	0-40	35-85	30-75	15-65	10-55	20-30	NP-5
	20-60	Extremely gravelly loamy sand, extremely gravelly sand, very gravelly loamy sand.	GP, GP-GM	A-1	0-5	0-40	20-50	10-45	5-20	0-10	---	NP
Weirman-----	0-12	Very cobbly sandy loam.	GM, SM	A-1	0-5	20-25	50-65	40-55	15-30	10-25	15-20	NP-5
	12-18	Very gravelly loamy sand.	GP-GM, SP, GP, SP-SM	A-1	0-5	0-10	40-60	30-50	5-25	0-5	---	NP
	18-60	Extremely gravelly sand, very gravelly loamy sand, extremely gravelly loamy sand.	GP, GP-GM	A-1	0-10	5-20	30-50	10-45	5-20	0-10	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
69: Esquatzel-----	0-10	Silt loam-----	ML	A-4	0	0	100	100	95-100	75-90	---	NP
	10-40	Silt loam-----	ML	A-4	0	0	100	100	85-100	65-95	20-30	NP-5
	40-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	0	100	100	95-100	60-90	20-30	NP-5
Weirman fine sandy loam-----	0-15	Fine sandy loam	ML	A-4	0	0-5	90-100	85-95	65-85	45-65	15-20	NP-5
	15-18	Fine sandy loam	ML	A-4	0	0-5	90-100	85-95	65-85	45-65	15-20	NP-5
	18-27	Loamy sand, gravelly loamy sand.	SM	A-1, A-2	0-5	0-5	70-95	65-90	35-65	10-35	---	NP
	27-60	Extremely gravelly loamy sand, extremely gravelly sand, very gravelly loamy sand.	GP, GP-GM	A-1	0-10	5-20	30-50	10-45	5-20	0-10	---	NP
Weirman very cobbly sandy loam-----	0-10	Very cobbly sandy loam.	GM, SM	A-1	0-5	20-25	50-65	40-55	15-30	10-25	15-20	NP-5
	10-18	Very gravelly loamy sand.	GP, GP-GM, SP-SM, SP	A-1	0-5	0-10	40-60	30-50	5-25	0-5	---	NP
	18-60	Extremely gravelly sand, very gravelly loamy sand, extremely gravelly loamy sand.	GP, GP-GM	A-1	0-10	5-20	30-50	10-45	5-20	0-10	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
70: Finley sandy loam-----	In				Pct	Pct					Pct	
	0-4	Sandy loam-----	CL, CL-ML	A-4	0	0-5	90-100	85-95	65-75	55-65	25-30	5-10
	4-13	Gravelly loam, loam, gravelly sandy loam.	GC, GC-GM, SC	A-2, A-4	0	0-5	60-85	55-80	35-70	25-60	25-30	5-10
	13-22	Very gravelly loam, very cobbly sandy loam, extremely gravelly sandy loam.	GC, GP-GC	A-2	0-5	20-45	40-60	35-55	15-35	5-25	20-25	5-10
	22-38	Very gravelly loam, very cobbly sandy loam, extremely gravelly sandy loam.	GC, GP-GC	A-2	0-5	20-45	40-60	35-55	15-35	5-25	20-25	5-10
	38-60	Extremely gravelly loamy sand, extremely gravelly sand, extremely cobbly sand.	GM, GP, SP, SM	A-1	5-20	20-60	30-60	25-55	5-30	0-15	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
70: Finley cobbly sandy loam-----	0-8	Cobbly sandy loam.	SC, SC-SM	A-4	0-5	15-25	75-85	70-80	50-60	40-50	25-30	5-10
	8-20	Very gravelly loam, very cobbly sandy loam, extremely gravelly sandy loam.	GC, GP-GC	A-2	0-5	20-45	40-60	35-55	15-35	5-25	20-25	5-10
	20-29	Very gravelly loam, very cobbly sandy loam, extremely gravelly sandy loam.	GC, GP-GC	A-2	0-5	20-45	40-60	35-55	15-35	5-25	20-25	5-10
	29-60	Extremely gravelly loamy sand, extremely gravelly sand, extremely cobbly sand.	GP, GM, SM, SP	A-1	5-20	20-60	30-60	25-55	5-30	0-15	---	NP
71: Fortyday-----	0-3	Very stony loam	GC-GM, SC-SM	A-2, A-4	10-25	20-25	50-75	45-70	40-65	30-50	20-30	5-10
	3-6	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	6-15	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
71: Drino-----	0-3	Very stony loam	GM, SC-SM, GC-GM, SM	A-2, A-4	10-25	20-30	50-70	40-60	35-55	25-45	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-55	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Nevo-----	0-2	Extremely gravelly sandy loam.	GC-GM, GM	A-1, A-2	0	15-30	30-45	20-35	10-25	5-20	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
72: Fortyday-----	0-3	Very stony loam	GC-GM, SC-SM	A-2, A-4	10-25	20-25	50-75	45-70	40-65	30-50	20-30	5-10
	3-6	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	6-15	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
72: Drino-----	0-3	Very stony loam	GC-GM, GM, SM, SC-SM	A-2, A-4	10-25	20-30	50-70	40-60	35-55	25-45	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-55	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Nevo-----	0-2	Extremely gravelly sandy loam.	GC-GM, GM	A-1, A-2	0	15-30	30-45	20-35	10-25	5-20	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
73: Fortyday-----	0-3	Very stony loam	GC-GM, SC-SM	A-2, A-4	10-25	20-25	50-75	45-70	40-65	30-50	20-30	5-10
	3-6	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	6-15	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
73: Drino-----	0-3	Very stony loam	GC-GM, GM, SM, SC-SM	A-2, A-4	10-25	20-30	50-70	40-60	35-55	25-45	20-30	NP-10
	3-19	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-40	50-55	40-55	35-45	25-40	25-35	5-15
	19-38	Extremely cobbly loam, very gravelly loam, extremely gravelly loam.	GC, GC-GM	A-1, A-2	0-10	15-55	35-60	25-50	20-40	15-35	25-35	5-15
	38-42	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Sohappy-----	0-4	Silt loam-----	ML	A-4	0	0	100	100	90-100	75-90	15-25	NP-5
	4-17	Silt loam, loam	ML	A-4	0	0	95-100	90-100	85-100	55-90	20-25	NP-5
	17-41	Gravelly silt loam, cobbly silt loam, cobbly loam.	ML	A-4	0	10-20	75-90	70-85	50-75	35-70	15-25	5-10
	41-47	Extremely cobbly clay loam, very cobbly loam.	GM	A-1, A-2	0-10	20-45	30-60	25-55	20-45	15-35	25-35	5-15
	47-51	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
74: Fortyday-----	0-3	Stony sandy loam.	GM, GC-GM, SM	A-2, A-4	5-10	0-5	60-85	55-75	45-65	30-50	20-30	NP-10
	3-10	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	10-13	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	13-17	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
74: Nevo-----	0-2	Stony sandy loam.	GC-GM, SM, GM	A-2, A-4	5-10	0-5	60-85	55-75	45-65	30-50	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
75: Fortyday-----	0-3	Very stony loam	GC-GM, SC-SM	A-2, A-4	10-25	20-25	50-75	45-70	40-65	30-50	20-30	5-10
	3-6	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	6-15	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Rubble land-----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP
Rock outcrop----	0-60	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
76: Frint-----	0-12	Gravelly silt loam.	ML	A-4	0	0-15	70-85	60-70	55-70	50-65	20-30	NP-5
	12-20	Very gravelly loam, very gravelly silt loam.	GC-GM	A-2	0	5-25	45-55	35-45	30-40	20-35	25-30	5-10
	20-28	Extremely gravelly loam, extremely cobbly loam, very cobbly silt loam.	GC-GM	A-2, A-4	0-10	15-40	35-60	25-50	20-45	15-40	25-30	5-10
	28-32	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Gidwin-----	0-3	Cobbly silt loam.	CL	A-6	0	10-30	60-90	60-80	55-75	50-70	25-35	10-15
	3-7	Very gravelly loam, very cobbly loam.	GC	A-6	0-5	10-40	50-70	40-60	35-55	30-50	25-35	10-15
	7-17	Very gravelly clay loam, extremely gravelly loam, extremely cobbly loam.	GC	A-2	0-10	10-40	25-55	15-45	10-40	5-35	25-35	10-15
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
77: Frint-----	0-12	Gravelly silt loam.	ML	A-4	0	0-15	70-85	60-70	55-70	50-65	20-30	NP-5
	12-20	Very gravelly loam, very gravelly silt loam.	GC-GM	A-2	0	5-25	45-55	35-45	30-40	20-35	25-30	5-10
	20-28	Extremely gravelly loam, extremely cobbly loam, very cobbly silt loam.	GC-GM	A-2, A-4	0-10	15-40	35-60	25-50	20-45	15-40	25-30	5-10
	28-32	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Hogranch-----	0-8	Silt loam-----	ML	A-4	0	0-5	85-100	75-95	70-90	65-85	20-30	NP-5
	8-21	Very gravelly loam, gravelly silt loam, gravelly loam.	GM	A-2, A-4	0-10	5-40	50-75	40-65	35-60	30-55	20-30	NP-5
	21-46	Extremely cobbly loam, extremely gravelly loam, very cobbly loam.	GC-GM	A-2, A-4	0-10	25-50	35-65	25-55	20-50	15-45	25-30	5-10
	46-50	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
78: Frint-----	0-12	Gravelly silt loam.	ML	A-4	0	0-15	70-85	60-70	55-70	50-65	20-30	NP-5
	12-20	Very gravelly loam, very gravelly silt loam.	GC-GM	A-2	0	5-25	45-55	35-45	30-40	20-35	25-30	5-10
	20-28	Extremely gravelly loam, extremely cobbly loam, very cobbly silt loam.	GC-GM	A-2, A-4	0-10	15-40	35-60	25-50	20-45	15-40	25-30	5-10
	28-32	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
78: Hogranch-----	0-8	Silt loam-----	ML	A-4	0	0-5	85-100	75-95	70-90	65-85	20-30	NP-5
	8-21	Very gravelly loam, gravelly silt loam, gravelly loam.	GM	A-2, A-4	0-10	5-40	50-75	40-65	35-60	30-55	20-30	NP-5
	21-46	Extremely cobble loam, extremely gravelly loam, very cobbly loam.	GC-GM	A-2, A-4	0-10	25-50	35-65	25-55	20-50	15-45	25-30	5-10
	46-50	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Gidwin-----	0-3	Cobbly silt loam.	CL	A-6	0	10-30	60-90	60-80	55-75	50-70	25-35	10-15
	3-7	Very gravelly loam, very cobble loam.	GC	A-6	0-5	10-40	50-70	40-60	35-55	30-50	25-35	10-15
	7-17	Very gravelly clay loam, extremely gravelly loam, extremely cobble loam.	GC	A-2	0-10	10-40	25-55	15-45	10-40	5-35	25-35	10-15
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
79: Gorskel silt loam-----	0-5	Silt loam-----	CL, CL-ML	A-4	0	0	100	90-100	80-90	60-85	20-25	5-10
	5-10	Gravelly silt loam, cobbly loam, very gravelly loam.	GC	A-2, A-4	0	0-20	60-70	50-65	45-55	40-50	30-35	10-15
	10-16	Very gravelly loam, very gravelly clay loam, very cobbly clay loam.	GC, SC	A-2, A-6	0-10	20-35	55-65	45-60	35-45	25-40	30-40	10-20
	16-26	Indurated-----	---	---	0	0	---	---	---	---	---	---
	26-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
Gorskel cobbly loam-----	0-5	Cobbly loam----	CL, CL-ML	A-4	0-10	10-20	80-90	70-80	65-75	60-70	20-25	5-10
	5-9	Gravelly silt loam, cobbly loam, very gravelly loam.	GC	A-2, A-4	0	0-20	60-70	50-60	45-55	40-50	30-35	10-15
	9-14	Very gravelly loam, very gravelly clay loam, very cobbly clay loam.	GC, SC	A-2, A-6	0-10	20-35	55-65	45-55	35-45	25-40	30-40	10-20
	14-24	Indurated-----	---	---	0	0	---	---	---	---	---	---
	24-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
80: Gorst-----	0-6	Loam-----	CL-ML	A-4	0	0-5	95-100	95-100	80-95	60-75	20-25	5-10
	6-14	Loam, silt loam, gravelly loam.	CL	A-6	0	0-5	90-100	65-95	60-90	50-70	25-35	10-15
	14-24	Indurated-----	---	---	0	0	---	---	---	---	---	---
	24-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
81: Grinrod-----	0-4	Very cobbly loam.	GC, GC-GM	A-2, A-4	0-10	30-45	45-70	35-60	25-55	25-45	25-30	5-10
	4-11	Very gravelly loam.	GC, GC-GM	A-2, A-4	0-5	5-30	50-65	40-55	30-45	20-40	25-30	5-10
	11-25	Very gravelly loam, extremely gravelly loam, extremely cobbly clay loam.	GC	A-1, A-2	0-10	10-50	30-60	25-55	15-45	15-35	30-40	5-15
	25-29	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-2, A-6	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
82: Grinrod-----	In											
	0-4	Very cobbly loam.	GC, GC-GM	A-2, A-4	0-10	30-45	45-70	35-60	25-55	25-45	25-30	5-10
	4-11	Very gravelly loam.	GC, GC-GM	A-2, A-4	0-5	5-30	50-65	40-55	30-45	20-40	25-30	5-10
	11-25	Very gravelly loam, extremely gravelly loam, extremely cobbly clay loam.	GC	A-1, A-2	0-10	10-50	30-60	25-55	15-45	15-35	30-40	5-15
	25-29	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-6, A-2	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
83: Haploxerolls----	0-14	Silt loam-----	ML	A-4	0	0	100	100	95-100	80-90	20-30	NP-5
	14-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	0	100	100	95-100	60-90	20-30	NP-5
Orthents-----	0-6	Very cobbly loamy sand.	GM, GP-GM	A-1	0-10	30-50	55-70	45-60	25-55	5-35	---	NP
	6-60	Extremely gravelly sand, very gravelly loamy sand, extremely gravelly loamy sand.	GP, GP-GM	A-1	0-10	5-20	30-50	10-45	5-20	0-10	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
83: Aquolls-----	In											
	0-6	Cobbly fine sandy loam.	ML, SM	A-4	0-5	20-30	80-95	70-85	50-75	45-60	20-30	NP-5
	6-10	Gravelly sandy loam, very cobbly sandy loam, very gravelly loam.	ML, GM, SM	A-1, A-4, A-2	0-5	0-40	45-85	40-75	25-65	15-55	20-30	NP-5
	10-20	Extremely gravelly sandy loam, very gravelly sandy loam, gravelly loam.	ML, GM, SM	A-1, A-2, A-4	0-5	0-40	35-85	30-75	15-65	10-55	20-30	NP-5
	20-60	Extremely gravelly loamy sand, extremely gravelly sand, very gravelly loamy sand.	GP, GP-GM	A-1	0-5	0-40	20-50	10-45	5-20	0-10	---	NP
84: Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-2, A-6	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
85: Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-6, A-2	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
86: Kiona-----	0-4	Very stony loam	GM	A-4	10-25	15-25	55-75	45-65	35-50	30-45	20-30	NP-5
	4-21	Cobbly silt loam, very cobbly loam, very gravelly loam.	GM, SM, ML	A-4	0-10	15-30	60-90	45-80	45-75	35-70	20-30	NP-5
	21-60	Extremely cobbly loam, extremely gravelly loam, very cobbly silt loam.	GM	A-1, A-4	0-10	15-40	35-60	25-50	20-45	15-40	20-30	NP-5
87: Kiona-----	0-4	Very stony loam	GM	A-4	10-25	15-25	55-75	45-65	35-50	30-45	20-30	NP-5
	4-21	Cobbly silt loam, very cobbly loam, very gravelly loam.	ML, GM, SM	A-4	0-10	15-30	60-90	45-80	45-75	35-70	20-30	NP-5
	21-60	Extremely cobbly loam, extremely gravelly loam, very cobbly silt loam.	GM	A-1, A-4	0-10	15-40	35-60	25-50	20-45	15-40	20-30	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
87: Rubble land-----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP
88: Lainand-----	0-4	Gravelly loam	GC, SM	A-4	0	5-10	55-85	50-75	45-65	35-50	20-30	NP-5
	4-22	Very gravelly loam, very cobbly loam.	GM	A-2, A-6	0-10	5-40	40-70	35-55	30-50	25-50	35-40	15-20
	22-43	Extremely cobbly clay loam, extremely gravelly clay loam, extremely cobbly loam.	GC	A-2, A-6	0-10	15-65	40-60	20-60	15-55	10-50	35-40	15-20
	43-47	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Tanksel-----	0-4	Loam-----	ML	A-4	0-10	0-10	85-100	80-90	70-85	65-80	20-30	NP-5
	4-12	Gravelly loam, loam, silt loam.	ML	A-4	0-10	0-10	75-95	65-85	60-80	55-75	20-30	NP-5
	12-22	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7	0-10	10-40	50-65	45-60	40-55	35-50	35-45	15-25
	22-34	Extremely cobbly clay loam, very gravelly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-50	30-60	20-50	15-45	10-35	45-55	20-30
	34-38	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
89: Laric-----	0-3	Very gravelly loam.	GC-GM, GM	A-1, A-2, A-4	0-5	0-10	40-60	30-50	25-45	20-40	20-30	NP-10
	3-8	Gravelly clay loam, gravelly loam.	CL	A-6	0	0-15	70-85	60-75	55-70	50-65	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
90: Laric-----	0-3	Very gravelly loam.	GC-GM, GM	A-1, A-2, A-4	0-5	0-10	40-60	30-50	25-45	20-40	20-30	NP-10
	3-8	Gravelly clay loam, gravelly loam.	CL	A-6	0	0-15	70-85	60-75	55-70	50-65	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Zen-----	0-12	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	12-18	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	18-25	Silt loam, clay loam, gravelly loam.	CL, SC-SM, SC	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	25-29	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
91: Levnik-----	0-4	Very gravelly loam.	GC, GC-GM	A-2	0	0-10	45-60	40-50	30-40	20-35	25-30	5-15
	4-8	Clay loam-----	CL	A-6	0	0-5	80-100	75-90	65-85	55-75	35-45	15-20
	8-13	Gravelly clay loam, clay loam, gravelly clay.	GC, CL, SC	A-7	0	0-5	65-95	60-85	50-75	45-70	40-50	15-25
	13-16	Extremely gravelly clay, very gravelly clay, very cobbly clay.	GC, GP-GC	A-2, A-7	0-5	15-40	25-70	20-60	10-50	10-45	45-55	20-30
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
91: Nosser-----	0-3	Gravelly loam	CL, GC-GM, GC	A-6	0	0-5	60-90	55-75	45-65	35-55	25-30	5-15
	3-10	Clay loam-----	CL	A-6, A-7	0	0-5	95-100	75-95	70-90	60-85	35-45	15-20
	10-18	Gravelly clay loam, clay loam.	CL	A-6, A-7	0	0-15	70-95	65-85	60-80	50-70	35-45	15-20
	18-22	Extremely gravelly clay loam, very gravelly clay loam, very cobble clay loam.	GC, GP-GC	A-2, A-7	0-5	15-40	25-70	20-60	10-50	10-45	35-45	15-20
	22-26	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Nevo-----	0-2	Very cobble loam.	GC-GM, GM	A-4	0-5	35-40	65-75	55-65	45-55	40-50	10-15	NP
	2-9	Very gravelly clay loam, very cobble loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	9-13	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
92: Malaga-----	0-4	Gravelly sandy loam.	GM, SM	A-2, A-4	0	0-5	60-85	50-75	40-65	25-50	20-30	NP-5
	4-9	Gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	0	0-10	75-85	55-75	45-60	25-50	20-30	NP-5
	9-15	Very gravelly fine sandy loam, extremely gravelly sandy loam, extremely gravelly loam.	GM	A-1, A-2	0	0-15	30-60	20-55	15-40	10-30	20-30	NP-5
	15-60	Extremely gravelly loamy sand, extremely gravelly coarse sand, very cobbly sand.	GP, GP-GM, SP-SM, SP	A-1	0-10	10-35	30-60	20-55	15-30	0-10	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
93: Malaga-----	0-4	Cobbly sandy loam.	ML	A-4	0-10	15-25	85-95	80-90	65-75	50-65	20-30	NP-5
	4-9	Gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	0	0-10	75-85	55-75	45-60	25-50	20-30	NP-5
	9-15	Very gravelly fine sandy loam, extremely gravelly sandy loam, extremely gravelly loam.	GM	A-1, A-2	0	0-15	30-60	20-55	15-40	10-30	20-30	NP-5
	15-60	Extremely gravelly loamy sand, extremely gravelly coarse sand, very cobbly sand.	GP-GM, SP, GP, SP-SM	A-1	0-10	10-35	30-60	20-55	15-30	0-10	---	NP
94: Manastash-----	0-4	Loam-----	CL	A-6	0	0	100	100	85-95	60-75	25-35	10-15
	4-10	Loam, clay loam	CL	A-6	0	0	100	100	85-100	60-80	25-35	10-15
	10-16	Clay, gravelly clay, gravelly clay loam.	CH, SC, CL	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	16-25	Gravelly clay, clay, sandy clay.	CH, SC, CL	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	25-35	Indurated-----	---	---	0	0	---	---	---	---	---	---
	35-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
95: Manastash-----	0-4	Loam-----	CL	A-6	0	0	100	100	85-95	60-75	25-35	10-15
	4-10	Loam, clay loam	CL	A-6	0	0	100	100	85-100	60-80	25-35	10-15
	10-16	Clay, gravelly clay, gravelly clay loam.	CH, SC, CL	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	16-25	Gravelly clay, clay, sandy clay.	CH, SC, CL	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	25-35	Indurated-----	---	---	0	0	---	---	---	---	---	---
	35-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
96: Manastash-----	0-4	Loam-----	CL	A-6	0	0	100	100	85-95	60-75	25-35	10-15
	4-10	Loam, clay loam	CL	A-6	0	0	100	100	85-100	60-80	25-35	10-15
	10-16	Clay, gravelly clay, gravelly clay loam.	CH, SC, CL	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	16-25	Gravelly clay, clay, sandy clay.	CH, CL, SC	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	25-35	Indurated-----	---	---	0	0	---	---	---	---	---	---
	35-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
96: Durtash-----	0-4	Stony loam-----	CL-ML	A-4, A-6	5-10	5-10	75-90	70-85	65-80	50-75	25-30	5-15
	4-15	Extremely gravelly clay, very gravelly clay loam, very cobbly clay loam.	GC	A-2	0-10	15-40	30-60	25-50	15-40	5-35	40-60	15-30
	15-25	Indurated-----	---	---	0	0	---	---	---	---	---	---
	25-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
97: Manastash-----	0-4	Loam-----	CL	A-6	0	0	100	100	85-95	60-75	25-35	10-15
	4-10	Loam, clay loam	CL	A-6	0	0	100	100	85-100	60-80	25-35	10-15
	10-16	Clay, gravelly clay, gravelly clay loam.	CH, CL, SC	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	16-25	Gravelly clay, clay, sandy clay.	CH, SC, CL	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	25-35	Indurated-----	---	---	0	0	---	---	---	---	---	---
	35-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
Durtash-----	0-4	Stony loam-----	CL-ML	A-4, A-6	5-10	5-10	75-90	70-85	65-80	50-75	25-30	5-15
	4-15	Extremely gravelly clay, very gravelly clay loam, very cobbly clay loam.	GC	A-2	0-10	15-40	30-60	25-50	15-40	5-35	40-60	15-30
	15-25	Indurated-----	---	---	0	0	---	---	---	---	---	---
	25-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
											In	Pct
98: Manastash-----	0-4	Loam-----	CL	A-6	0	0	100	100	85-95	60-75	25-35	10-15
	4-10	Loam, clay loam	CL	A-6	0	0	100	100	85-100	60-80	25-35	10-15
	10-20	Clay, gravelly clay, gravelly clay loam.	CH, SC, CL	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	20-25	Gravelly clay, clay, sandy clay.	CH, SC, CL	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	25-35	Indurated-----	---	---	0	0	---	---	---	---	---	---
	35-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
Meloza-----	0-3	Clay loam-----	CL	A-6	0	0-5	95-100	95-100	85-100	70-95	35-40	15-20
	3-21	Silty clay loam, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	95-100	85-100	75-95	40-60	25-35
	21-60	Silty clay loam, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	95-100	85-100	60-95	40-60	25-35
Durtash-----	0-4	Stony loam-----	CL-ML	A-4, A-6	5-10	5-10	75-90	70-85	65-80	50-75	25-30	5-15
	4-15	Extremely gravelly clay, very gravelly clay loam, very cobbly clay loam.	GC	A-2	0-10	15-40	30-60	25-50	15-40	5-35	40-60	15-30
	15-25	Indurated-----	---	---	0	0	---	---	---	---	---	---
	25-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
99: Manastash-----	0-4	Loam-----	CL	A-6	0	0	100	100	85-95	60-75	25-35	10-15
	4-10	Loam, clay loam	CL	A-6	0	0	100	100	85-100	60-80	25-35	10-15
	10-16	Clay, gravelly clay, gravelly clay loam.	CL, CH, SC	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	16-25	Gravelly clay, clay, sandy clay.	CH, CL, SC	A-2, A-7	0	0-10	70-100	60-100	55-100	25-95	40-60	20-35
	25-35	Indurated-----	---	---	0	0	---	---	---	---	---	---
	35-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
Selah-----	0-10	Silt loam-----	CL, CL-ML	A-4	0	0	95-100	85-100	75-100	65-90	20-25	5-10
	10-14	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	65-85	30-40	10-20
	14-20	Silt loam, silty clay loam, clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	55-85	30-40	10-20
	20-27	Clay loam, gravelly clay loam.	GC, CL, SC	A-6, A-7	0	0-15	65-95	55-90	50-85	45-70	35-45	10-20
	27-37	Indurated-----	---	---	0	0	---	---	---	---	---	---
	37-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
99: Gorst-----	0-6	Loam-----	CL-ML	A-4	0	0-5	95-100	95-100	80-95	60-75	20-25	5-10
	6-14	Loam, silt loam, gravelly loam.	CL	A-6	0	0-5	90-100	65-95	60-90	50-70	25-35	10-15
	14-24	Indurated-----	---	---	0	0	---	---	---	---	---	---
	24-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
100: Marlic-----	0-6	Loam-----	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-95	75-90	70-85	25-30	5-15
	6-12	Clay loam-----	CL	A-6, A-7	0	0-5	85-100	80-95	75-90	70-85	35-45	15-20
	12-15	Clay loam, gravelly clay loam.	CL	A-7	0	0-15	65-95	60-90	55-85	50-80	40-50	15-20
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Zen-----	0-12	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	12-18	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	18-25	Silt loam, clay loam, gravelly loam.	SC, CL, SC-SM	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	25-29	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Laric-----	0-3	Very gravelly loam.	GC-GM, GM	A-1, A-2, A-4	0-5	0-10	40-60	30-50	25-45	20-40	20-30	NP-10
	3-9	Gravelly clay loam, gravelly loam.	CL	A-6	0	0-15	70-85	60-75	55-70	50-65	30-40	10-15
	9-13	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
101: Meloza-----	0-3	Clay loam-----	CL	A-6	0	0-5	95-100	95-100	85-100	70-95	35-40	15-20
	3-21	Silty clay loam, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	95-100	85-100	75-95	40-60	25-35
	21-60	Silty clay loam, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	95-100	85-100	60-95	40-60	25-35
Roza-----	0-3	Clay	CH	A-7	0	0-5	90-100	85-100	75-100	60-90	50-60	20-30
	3-18	Silty clay, silty clay loam, clay.	CH, CL	A-7	0	0-5	90-100	85-100	75-100	60-90	40-60	15-30
	18-60	Silty clay loam, silty clay, clay.	CH, CL	A-7	0	0-5	90-100	85-100	75-100	60-90	40-60	15-30
102: Meloza-----	0-3	Clay loam-----	CL	A-6	0	0-5	95-100	95-100	85-100	70-95	35-40	15-20
	3-21	Silty clay loam, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	95-100	85-100	75-95	40-60	25-35
	21-60	Silty clay loam, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	95-100	85-100	60-95	40-60	25-35
Roza-----	0-3	Clay	CH	A-7	0	0-5	90-100	85-100	75-100	60-90	50-60	20-30
	3-18	Silty clay, silty clay loam, clay.	CH, CL	A-7	0	0-5	90-100	85-100	75-100	60-90	40-60	15-30
	18-60	Silty clay loam, silty clay, clay.	CH, CL	A-7	0	0-5	90-100	85-100	75-100	60-90	40-60	15-30

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
103: Meloza-----	0-3	Clay loam-----	CL	A-6	0	0-5	95-100	95-100	85-100	70-95	35-40	15-20
	3-21	Silty clay loam, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	95-100	85-100	75-95	40-60	25-35
	21-60	Silty clay loam, clay loam, silty clay.	CH, CL	A-7	0	0-5	95-100	95-100	85-100	60-95	40-60	25-35
Roza-----	0-3	Clay	CH	A-7	0	0-5	90-100	85-100	75-100	60-90	50-60	20-30
	3-18	Silty clay, silty clay loam, clay.	CH, CL	A-7	0	0-5	90-100	85-100	75-100	60-90	40-60	15-30
	18-60	Silty clay loam, silty clay, clay.	CH, CL	A-7	0	0-5	90-100	85-100	75-100	60-90	40-60	15-30
104: Nack-----	0-6	Loam-----	CL	A-6	0	0-10	90-100	90-100	90-100	65-85	25-35	10-15
	6-15	Sandy clay loam, gravelly sandy clay loam, clay loam.	CL, SC	A-6, A-7	0	0-10	75-100	65-90	55-80	45-70	35-45	15-20
	15-60	Extremely gravelly sandy clay loam, extremely cobbly sandy clay loam, extremely gravelly sandy clay.	GP, GP-GC	A-2	0-5	25-50	15-50	10-35	5-30	0-25	35-45	15-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct					Pct	
104: Opnish-----	0-8	Loam-----	CL	A-6	0	0	100	95-100	90-100	65-85	25-35	10-15
	8-13	Clay loam, loam	CL	A-6	0	0	100	95-100	90-100	65-85	35-45	15-20
	13-26	Clay loam, sandy clay.	CL, SC	A-7	0	0	95-100	80-100	65-90	45-70	40-50	15-25
	26-60	Extremely gravelly clay loam, very gravelly clay loam, extremely gravelly sandy clay.	GC, GP-GC	A-2	0	10-30	15-55	15-45	5-35	5-30	40-50	15-25
105: Neppel-----	0-3	Loam-----	ML	A-4	0	0	95-100	90-100	89-90	65-85	25-30	NP-5
	3-21	Loam, very fine sandy loam, fine sandy loam.	ML	A-4	0	0-5	90-100	85-95	70-80	50-60	25-30	NP-5
	21-25	Gravelly fine sandy loam, gravelly very fine sandy loam.	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	---	NP
	25-60	Extremely gravelly sand, extremely gravelly coarse sand.	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
105: Scoon-----	0-3	Loam-----	CL, CL-ML	A-4	0	0	90-100	85-100	75-90	70-85	20-30	NP-10
	3-14	Silt loam, gravelly silt loam, gravelly very fine sandy loam.	CL, CL-ML, GC-GM, GC	A-4	0	0	65-100	60-100	50-90	45-85	20-30	NP-10
	14-17	Gravelly silt loam, gravelly very fine sandy loam.	GC, GC-GM	A-4	0	0-10	55-80	50-75	40-65	35-60	20-30	NP-10
	17-27	Indurated-----	---	---	0	0	---	---	---	---	---	---
	27-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
106: Nevo-----	0-2	Extremely gravelly sandy loam.	GC-GM, GM	A-1, A-2	0	15-30	30-45	20-35	10-25	5-20	10-15	NP
	2-7	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	7-11	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
107: Nevo-----	0-2	Very cobbly loam.	GC-GM, GM	A-4	0-5	35-40	65-75	55-65	45-55	40-50	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
107: Fortyday-----	In											
	0-4	Cobbly loam----	CL, CL-ML	A-4	0-10	10-30	70-95	60-80	55-75	50-65	20-30	5-10
	4-9	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	9-17	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
108: Nevo very cobbly loam-----												
	0-2	Very cobbly loam.	GC-GM, GM	A-4	0-5	35-40	65-75	55-65	45-55	40-50	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Nevo extremely gravelly sandy loam-----												
	0-2	Extremely gravelly sandy loam.	GC-GM, GM	A-1, A-2	0	15-30	30-45	20-35	10-25	5-20	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
109: Nevo very cobbly loam-----	0-2	Very cobbly loam.	GC-GM, GM	A-4	0-5	35-40	65-75	55-65	45-55	40-50	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Nevo extremely gravelly sandy loam-----	0-2	Extremely gravelly sandy loam.	GC-GM, GM	A-1, A-2	0	15-30	30-45	20-35	10-25	5-20	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
110: Niben-----	0-4	Loam-----	CL, CL-ML	A-4, A-6	0	0-5	80-100	75-90	70-85	60-75	25-35	5-15
	4-18	Clay loam-----	CL	A-6	0	0	85-100	75-95	70-90	60-80	35-40	15-20
	18-51	Clay, clay loam	CL	A-7	0	0	90-100	85-95	80-90	70-80	40-50	15-25
	51-60	Clay loam, clay, gravelly clay loam.	CL	A-7	0	0-15	70-100	65-95	55-90	50-80	40-50	15-25

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
110: Vantage-----	In											
	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-7	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	7-16	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Benwy-----	0-4	Silt loam-----	CL-ML, ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	4-34	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-25	NP-5
	34-45	Clay loam, silt loam, loam.	CL, CL-ML	A-4, A-6	0	0	85-95	80-95	70-85	60-75	25-35	5-15
	45-60	Gravelly loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-100	65-95	55-85	50-75	25-35	5-15
111: Norod-----	0-10	Cobbly loam----	ML	A-4	0-5	15-30	80-90	70-80	65-75	60-70	20-30	NP-5
	10-28	Very cobbly loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-30	50-70	40-60	35-55	30-50	30-40	10-15
	28-33	Extremely cobbly loam, very cobbly loam, extremely gravelly clay loam.	GC	A-2, A-6	0-10	15-45	35-60	25-55	20-50	15-40	30-40	10-15
	33-37	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
	In				Pct	Pct					Pct	
111: Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-2, A-6	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
112: Norod-----	0-10	Cobbly loam----	ML	A-4	0-5	15-30	80-90	70-80	65-75	60-70	20-30	NP-5
	10-28	Very cobbly loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-30	50-70	40-60	35-55	30-50	30-40	10-15
	28-33	Extremely cobbly loam, very cobbly loam, extremely gravelly clay loam.	GC	A-2, A-6	0-10	15-45	35-60	25-55	20-50	15-40	30-40	10-15
	33-37	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
112: Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-6, A-2	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
113: Norod-----	0-10	Cobbly loam----	ML	A-4	0-5	15-30	80-90	70-80	65-75	60-70	20-30	NP-5
	10-28	Very cobbly loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-30	50-70	40-60	35-55	30-50	30-40	10-15
	28-33	Extremely cobbly loam, very cobbly loam, extremely gravelly clay loam.	GC	A-2, A-6	0-10	15-45	35-60	25-55	20-50	15-40	30-40	10-15
	33-37	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
113: Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-2, A-6	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
114: Norod-----	0-10	Cobbly loam----	ML	A-4	0-5	15-30	80-90	70-80	65-75	60-70	20-30	NP-5
	10-28	Very cobbly loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-30	50-70	40-60	35-55	30-50	30-40	10-15
	28-33	Extremely cobbly loam, very cobbly loam, extremely gravelly clay loam.	GC	A-2, A-6	0-10	15-45	35-60	25-55	20-50	15-40	30-40	10-15
	33-37	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
114: Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-2, A-7, A-6	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20
Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-2, A-6	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
115: Norod-----	0-10	Cobbly loam----	ML	A-4	0-5	15-30	80-90	70-80	65-75	60-70	20-30	NP-5
	10-28	Very cobbly loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-30	50-70	40-60	35-55	30-50	30-40	10-15
	28-33	Extremely cobbly loam, very cobbly loam, extremely gravelly clay loam.	GC	A-2, A-6	0-10	15-45	35-60	25-55	20-50	15-40	30-40	10-15
	33-37	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-2, A-6, A-7	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
115: Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-6, A-2	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
116: Norod-----	0-10	Cobbly loam----	ML	A-4	0-5	15-30	80-90	70-80	65-75	60-70	20-30	NP-5
	10-28	Very cobbly loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-30	50-70	40-60	35-55	30-50	30-40	10-15
	28-33	Extremely cobbly loam, very cobbly loam, extremely gravelly clay loam.	GC	A-2, A-6	0-10	15-45	35-60	25-55	20-50	15-40	30-40	10-15
	33-37	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
116: Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-2, A-7, A-6	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20
Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-2, A-6	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
117: Norod-----	0-10	Cobbly loam----	ML	A-4	0-5	15-30	80-90	70-80	65-75	60-70	20-30	NP-5
	10-28	Very cobbly loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-30	50-70	40-60	35-55	30-50	30-40	10-15
	28-33	Extremely cobbly loam, very cobbly loam, extremely gravelly clay loam.	GC	A-2, A-6	0-10	15-45	35-60	25-55	20-50	15-40	30-40	10-15
	33-37	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP
118: Nosser-----	0-3	Gravelly loam	CL, GC, GC-GM	A-6	0	0-5	60-90	55-75	45-65	35-55	25-30	5-15
	3-10	Clay loam-----	CL	A-6, A-7	0	0-5	95-100	75-95	70-90	60-85	35-45	15-20
	10-18	Gravelly clay loam, clay loam.	CL	A-6, A-7	0	0-15	70-95	65-85	60-80	50-70	35-45	15-20
	18-22	Extremely gravelly clay loam, very gravelly clay loam, very cobbly clay loam.	GC, GP-GC	A-2, A-7	0-5	15-40	25-70	20-60	10-50	10-45	35-45	15-20
	22-26	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
118: Levnik-----	0-4	Very gravelly loam.	GC, GC-GM	A-2	0	0-10	45-60	40-50	30-40	20-35	25-30	5-15
	4-8	Clay loam-----	CL	A-6	0	0-5	80-100	75-90	65-85	55-75	35-45	15-20
	8-13	Gravelly clay loam, clay loam, gravelly clay.	GC, CL, SC	A-7	0	0-5	65-95	60-85	50-75	45-70	40-50	15-25
	13-16	Extremely gravelly clay, very gravelly clay, very cobbly clay.	GC, GP-GC	A-2, A-7	0-5	15-40	25-70	20-60	10-50	10-45	45-55	20-30
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
119: Nosser-----	0-3	Gravelly loam	GC, CL, GC-GM	A-6	0	0-5	60-90	55-75	45-65	35-55	25-30	5-15
	3-10	Clay loam-----	CL	A-6, A-7	0	0-5	95-100	75-95	70-90	60-85	35-45	15-20
	10-18	Gravelly clay loam, clay loam.	CL	A-6, A-7	0	0-15	70-95	65-85	60-80	50-70	35-45	15-20
	18-22	Extremely gravelly clay loam, very gravelly clay loam, very cobbly clay loam.	GC, GP-GC	A-2, A-7	0-5	15-40	25-70	20-60	10-50	10-45	35-45	15-20
	22-26	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Levnik-----	0-4	Very gravelly loam.	GC, GC-GM	A-2	0	0-10	45-60	40-50	30-40	20-35	25-30	5-15
	4-8	Clay loam-----	CL	A-6	0	0-5	80-100	75-90	65-85	55-75	35-45	15-20
	8-13	Gravelly clay loam, clay loam, gravelly clay.	CL, GC, SC	A-7	0	0-5	65-95	60-85	50-75	45-70	40-50	15-25
	13-16	Extremely gravelly clay, very gravelly clay, very cobbly clay.	GC, GP-GC	A-2, A-7	0-5	15-40	25-70	20-60	10-50	10-45	45-55	20-30
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
120: Palerf-----	0-9	Gravelly loam	ML	A-4	0	5-10	80-90	70-85	65-80	55-70	20-30	NP-5
	9-27	Very cobbly clay loam, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	40-50	15-25
	27-35	Very cobbly clay, extremely cobbly clay loam, extremely gravelly clay.	GC	A-2, A-7	0-10	20-45	35-60	25-55	20-45	15-40	45-60	20-35
	35-39	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-2, A-6, A-7	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
120: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
121: Palerf-----	0-9	Gravelly loam	ML	A-4	0	5-10	80-90	70-85	65-80	55-70	20-30	NP-5
	9-27	Very cobbly clay loam, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	40-50	15-25
	27-35	Very cobbly clay, extremely cobbly clay loam, extremely gravelly clay.	GC	A-2, A-7	0-10	20-45	35-60	25-55	20-45	15-40	45-60	20-35
	35-39	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
121: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
122: Palexerolls----	0-5	Gravelly clay loam.	CL, SC	A-4, A-6	0	0-10	70-90	60-75	40-70	35-65	30-40	5-15
	5-21	Very gravelly clay, gravelly clay, clay.	CH, GC	A-2, A-7	0	0-15	50-100	45-90	30-85	20-80	50-60	20-30
	21-35	Very gravelly clay loam, gravelly clay loam, extremely gravelly clay.	CH, GC	A-2, A-6, A-7	0-10	10-35	40-80	35-75	25-65	10-60	35-55	15-30
	35-39	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Patron-----	0-15	Silt loam-----	ML	A-4	0	0-5	85-100	80-95	75-90	65-85	20-30	NP-5
	15-20	Gravelly clay loam.	CL	A-7	0	0	70-80	65-75	55-70	50-65	40-50	15-25
	20-44	Gravelly clay loam, gravelly clay.	CH, CL	A-7	0	0	70-80	65-75	55-70	50-65	45-55	20-30
	44-52	Gravelly clay loam, cobbly clay, very gravelly clay loam.	CH, GC	A-2, A-7, A-6	0-10	10-25	45-80	40-75	30-65	25-60	35-55	15-30
	52-56	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
123: Patron-----	0-15	Loam-----	ML	A-4	0	0	90-100	85-95	80-95	75-85	20-30	NP-5
	15-26	Gravelly clay loam.	CL	A-6, A-7	0	0-5	70-80	65-75	55-70	50-65	35-45	15-20
	26-30	Clay, gravelly clay.	CH, CL	A-7	0	0	80-95	75-95	65-80	60-70	40-60	15-30
	30-60	Gravelly clay loam, gravelly clay.	CH, CL, GC	A-7	0	0-10	60-85	55-75	45-70	40-65	40-60	15-30
Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
124: Prosser-----	0-4	Silt loam-----	ML	A-4	0	0	100	95-100	85-95	50-90	20-30	NP-5
	4-20	Very fine sandy loam, silt loam.	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	20-26	Very fine sandy loam, silt loam.	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	26-30	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
125: Prosser-----	0-4	Silt loam-----	ML	A-4	0	0	100	95-100	85-95	50-90	20-30	NP-5
	4-20	Very fine sandy loam, silt loam.	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	20-26	Very fine sandy loam, silt loam.	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	26-30	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
125: Nevo-----	In											
	0-2	Very cobbly loam.	GC-GM, GM	A-4	0-5	35-40	65-75	55-65	45-55	40-50	10-15	NP
	2-8	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-5	10-45	35-60	25-55	20-50	15-45	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
126: Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-2, A-6, A-7	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
127: Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-2, A-6, A-7	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20
128: Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-2, A-6, A-7	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
128: Horseflat-----	0-4	Very cobbly loam.	GC-GM, GM	A-4	0-10	25-40	50-75	45-70	40-65	35-60	25-35	5-10
	4-9	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM, GM	A-2, A-4	0-10	10-30	50-70	40-60	35-55	30-50	25-35	5-10
	9-16	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam.	GC	A-6, A-2	0-10	10-45	30-75	25-70	25-65	25-60	25-40	10-15
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
129: Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-6, A-2, A-7	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
129: Palerf-----	0-9	Gravelly loam	ML	A-4	0	5-10	80-90	70-85	65-80	55-70	20-30	NP-5
	9-27	Very cobbly clay loam, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	40-50	15-25
	27-35	Very cobbly clay, extremely cobbly clay loam, extremely gravelly clay.	GC	A-2, A-7	0-10	20-45	35-60	25-55	20-45	15-40	45-60	20-35
	35-39	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
130: Ralock-----	0-4	Silt loam-----	ML	A-4	0	0-5	90-100	80-90	65-80	50-60	20-30	NP-5
	4-14	Gravelly silt loam, silt loam.	ML	A-4	0	0-10	75-100	65-90	60-80	55-60	20-30	NP-5
	14-27	Gravelly clay loam, gravelly silt loam, silt loam.	CL	A-6	0	0-10	70-95	60-90	55-80	50-70	25-40	10-20
	27-49	Gravelly silt loam, gravelly clay loam, gravelly loam.	SC	A-6	0-10	0-10	70-80	60-70	45-60	35-50	30-40	10-20
	49-60	Very gravelly silt loam, very gravelly clay loam, gravelly loam.	GC	A-2, A-6, A-7	0-10	0-20	50-65	40-60	35-50	25-45	30-45	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
130: Palerf-----	0-9	Gravelly loam	ML	A-4	0	5-10	80-90	70-85	65-80	55-70	20-30	NP-5
	9-27	Very cobbly clay loam, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	40-50	15-25
	27-35	Very cobbly clay, extremely cobbly clay loam, extremely gravelly clay.	GC	A-2, A-7	0-10	20-45	35-60	25-55	20-45	15-40	45-60	20-35
	35-39	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
131: Rock outcrop----	0-60	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
132: Rollinger-----	0-11	Silt loam-----	ML	A-4	0	0	100	100	95-100	70-85	20-30	NP-5
	11-27	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	70-85	35-45	10-20
	27-48	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-7, A-6	0	0	100	75-100	70-100	60-85	25-45	5-20
	48-60	Sandy loam, loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	75-100	65-100	50-85	25-35	5-15
133: Rollinger-----	0-11	Silt loam-----	ML	A-4	0	0	100	100	95-100	70-85	20-30	NP-5
	11-27	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	70-85	35-45	10-20
	27-48	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-7, A-6	0	0	100	75-100	70-100	60-85	25-45	5-20
	48-60	Sandy loam, loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	75-100	65-100	50-85	25-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
134: Rollinger-----	0-11	Silt loam-----	ML	A-4	0	0	100	100	95-100	70-85	20-30	NP-5
	11-27	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	70-85	35-45	10-20
	27-48	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4, A-7	0	0	100	75-100	70-100	60-85	25-45	5-20
	48-60	Sandy loam, loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	75-100	65-100	50-85	25-35	5-15
135: Rollinger-----	0-12	Silt loam-----	ML	A-4	0	0	100	100	95-100	70-85	20-30	NP-5
	12-28	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	70-85	35-45	10-20
	28-52	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-7, A-6	0	0	100	75-100	70-100	60-85	25-45	5-20
	52-60	Sandy loam, loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	75-100	65-100	50-85	25-35	5-15
136: Rollinger-----	0-18	Silt loam-----	ML	A-4	0	0	100	100	95-100	70-85	20-30	NP-5
	18-29	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	70-85	35-45	10-20
	29-60	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-7, A-6	0	0	100	75-100	70-100	60-85	25-45	5-20
137: Rubble land-----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP
Rock outcrop----	0-60	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
138: Rubble land-----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP
Rock outcrop----	0-60	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
138: Kiona-----	0-4	Very stony loam	GM	A-4	10-25	15-25	55-75	45-65	35-50	30-45	20-30	NP-5
	4-21	Cobbly silt loam, very cobbly loam, very gravelly loam.	GM, ML, SM	A-4	0-10	15-30	60-90	45-80	45-75	35-70	20-30	NP-5
	21-60	Extremely cobbly loam, extremely gravelly loam, very cobbly silt loam.	GM	A-1, A-4	0-10	15-40	35-60	25-50	20-45	15-40	20-30	NP-5
139: Sagehill-----	0-4	Fine sandy loam	ML, SM	A-4	0	0-5	95-100	95-100	90-95	45-60	20-25	NP-5
	4-35	Fine sandy loam, very fine sandy loam, silt loam.	ML, SM	A-4	0	0-10	90-100	85-100	70-95	40-70	20-25	NP-5
	35-50	Fine sandy loam, very fine sandy loam, silt loam.	ML, SM	A-4	0	0-10	90-100	85-100	70-95	40-70	20-25	NP-5
	50-60	Fine sandy loam, gravelly fine sandy loam, very fine sandy loam.	ML, SM	A-2, A-4	0	0-10	75-100	70-90	60-85	25-60	20-25	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
139: Burbank-----	0-5	Very gravelly loamy sand.	GM, SM	A-1, A-2	0-5	15-35	45-70	35-60	20-50	10-30	---	NP
	5-17	Very gravelly loamy sand, very gravelly loamy fine sand.	GM	A-1	0-5	10-30	45-60	35-50	20-40	10-20	---	NP
	17-60	Very gravelly sand, extremely gravelly coarse sand, very cobbly loamy sand.	GP, GM, GP-GM	A-1	0-10	10-40	20-55	10-50	5-30	0-20	---	NP
Malaga-----	0-4	Gravelly sandy loam.	GM, SM	A-2, A-4	0	0-5	60-85	50-75	40-65	25-50	20-30	NP-5
	4-14	Gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	0	0-10	75-85	55-75	45-60	25-50	20-30	NP-5
	14-22	Very gravelly fine sandy loam, extremely gravelly sandy loam, extremely gravelly loam.	GM	A-1, A-2	0	0-15	30-60	20-55	15-40	10-30	20-30	NP-5
	22-60	Extremely gravelly loamy sand, extremely gravelly coarse sand, very cobbly sand.	GP, GP-GM, SP-SM, SP	A-1	0-10	10-35	30-60	20-55	15-30	0-10	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
140: Scoon-----	0-3	Loam-----	CL, CL-ML	A-4	0	0	90-100	85-100	75-90	70-85	20-30	NP-10
	3-14	Silt loam, gravelly silt loam, gravelly very fine sandy loam.	CL-ML, GC, CL, GC-GM	A-4	0	0	65-100	60-100	50-90	45-85	20-30	NP-10
	14-17	Gravelly silt loam, gravelly very fine sandy loam.	GC, GC-GM	A-4	0	0-10	55-80	50-75	40-65	35-60	20-30	NP-10
	17-27	Indurated-----	---	---	0	0	---	---	---	---	---	---
	27-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
141: Selah-----	0-10	Silt loam-----	CL, CL-ML	A-4	0	0	95-100	85-100	75-100	65-90	20-25	5-10
	10-14	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	65-85	30-40	10-20
	14-20	Silt loam, silty clay loam, clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	55-85	30-40	10-20
	20-27	Clay loam, gravelly clay loam.	CL, SC, GC	A-6, A-7	0	0-15	65-95	55-90	50-85	45-70	35-45	10-20
	27-37	Indurated-----	---	---	0	0	---	---	---	---	---	---
	37-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
142: Selah-----	0-10	Silt loam-----	CL, CL-ML	A-4	0	0	95-100	85-100	75-100	65-90	20-25	5-10
	10-14	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	65-85	30-40	10-20
	14-20	Silt loam, silty clay loam, clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	55-85	30-40	10-20
	20-27	Clay loam, gravelly clay loam.	CL, SC, GC	A-6, A-7	0	0-15	65-95	55-90	50-85	45-70	35-45	10-20
	27-37	Indurated-----	---	---	0	0	---	---	---	---	---	---
	37-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
143: Selah-----	0-10	Silt loam-----	CL, CL-ML	A-4	0	0	95-100	85-100	75-100	65-90	20-25	5-10
	10-14	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	65-85	30-40	10-20
	14-20	Silt loam, silty clay loam, clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	55-85	30-40	10-20
	20-27	Clay loam, gravelly clay loam.	CL, SC, GC	A-6, A-7	0	0-15	65-95	55-90	50-85	45-70	35-45	10-20
	27-37	Indurated-----	---	---	0	0	---	---	---	---	---	---
	37-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
144: Selah-----	0-10	Silt loam-----	CL, CL-ML	A-4	0	0	95-100	85-100	75-100	65-90	20-25	5-10
	10-14	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	65-85	30-40	10-20
	14-20	Silt loam, silty clay loam, clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	55-85	30-40	10-20
	20-27	Clay loam, gravelly clay loam.	CL, SC, GC	A-6, A-7	0	0-15	65-95	55-90	50-85	45-70	35-45	10-20
	27-37	Indurated-----	---	---	0	0	---	---	---	---	---	---
	37-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
145: Selah-----	0-10	Silt loam-----	CL, CL-ML	A-4	0	0	95-100	85-100	75-100	65-90	20-25	5-10
	10-14	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	65-85	30-40	10-20
	14-20	Silt loam, silty clay loam, clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	55-85	30-40	10-20
	20-27	Clay loam, gravelly clay loam.	CL, SC, GC	A-6, A-7	0	0-15	65-95	55-90	50-85	45-70	35-45	10-20
	27-37	Indurated-----	---	---	0	0	---	---	---	---	---	---
	37-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
146: Sohappy-----	0-4	Silt loam-----	ML	A-4	0	0	100	100	90-100	75-90	15-25	NP-5
	4-17	Silt loam, loam	ML	A-4	0	0	95-100	90-100	85-100	55-90	20-25	NP-5
	17-41	Gravelly silt loam, cobbly silt loam, cobbly loam.	ML	A-4	0	10-20	75-90	70-85	50-75	35-70	15-25	5-10
	41-47	Extremely cobbly clay loam, very cobbly loam.	GM	A-1, A-2	0-10	20-45	30-60	25-55	20-45	15-35	25-35	5-15
	47-51	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Fortyday-----	0-4	Cobbly loam----	CL, CL-ML	A-4	0-10	10-30	70-95	60-80	55-75	50-65	20-30	5-10
	4-9	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	9-17	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
147: Sohappy-----	0-4	Silt loam-----	ML	A-4	0	0	100	100	90-100	75-90	15-25	NP-5
	4-17	Silt loam, loam	ML	A-4	0	0	95-100	90-100	85-100	55-90	20-25	NP-5
	17-41	Gravelly silt loam, cobbly silt loam, cobbly loam.	ML	A-4	0	10-20	75-90	70-85	50-75	35-70	15-25	5-10
	41-47	Extremely cobbly clay loam, very cobbly loam.	GM	A-1, A-2	0-10	20-45	30-60	25-55	20-45	15-35	25-35	5-15
	47-51	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
	In				Pct	Pct						Pct
147: Fortyday-----	0-4	Cobbly loam----	CL, CL-ML	A-4	0-10	10-30	70-95	60-80	55-75	50-65	20-30	5-10
	4-9	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	9-17	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
148: Sohappy-----	0-4	Silt loam-----	ML	A-4	0	0	100	100	90-100	75-90	15-25	NP-5
	4-17	Silt loam, loam	ML	A-4	0	0	95-100	90-100	85-100	55-90	20-25	NP-5
	17-41	Gravelly silt loam, cobbly silt loam, cobbly loam.	ML	A-4	0	10-20	75-90	70-85	50-75	35-70	15-25	5-10
	41-47	Extremely cobbly clay loam, very cobbly loam.	GM	A-1, A-2	0-10	20-45	30-60	25-55	20-45	15-35	25-35	5-15
	47-51	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Fortyday-----	0-4	Cobbly loam----	CL, CL-ML	A-4	0-10	10-30	70-95	60-80	55-75	50-65	20-30	5-10
	4-9	Very cobbly loam, very gravelly loam.	GC, GC-GM	A-2, A-4	0-10	10-35	50-65	40-60	35-55	30-50	20-30	5-15
	9-17	Extremely gravelly clay loam, extremely cobbly loam, very gravelly loam.	GC	A-2, A-6	0-10	15-45	35-60	25-50	20-45	15-40	20-30	10-15
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
149: Starbuck-----	0-3	Fine sandy loam	ML	A-4	0	0-15	100	85-100	65-90	50-70	15-25	NP-5
	3-16	Silt loam, fine sandy loam, gravelly silt loam.	GM, ML, SM	A-2, A-4	0	0-15	65-100	60-95	50-70	30-70	20-30	NP-5
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
150: Tanksel-----	0-4	Loam-----	ML	A-4	0-10	0-10	85-100	80-90	70-85	65-80	20-30	NP-5
	4-12	Gravelly loam, loam, silt loam.	ML	A-4	0-10	0-10	75-95	65-85	60-80	55-75	20-30	NP-5
	12-22	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7	0-10	10-40	50-65	45-60	40-55	35-50	35-45	15-25
	22-34	Extremely cobbly clay loam, very gravelly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-50	30-60	20-50	15-45	10-35	45-55	20-30
	34-38	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Patron-----	0-12	Gravelly silt loam.	ML, SM	A-4	0	0-10	70-90	60-75	40-70	35-65	20-30	NP-5
	12-35	Gravelly silty clay loam, gravelly clay loam.	CL, SC	A-7	0	0-10	65-90	55-75	50-70	45-60	40-55	20-30
	35-60	Very gravelly clay loam, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-10	10-30	35-60	25-50	20-45	20-40	40-60	20-35

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
150: Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
151: Tanksel-----	0-4	Loam-----	ML	A-4	0-10	0-10	85-100	80-90	70-85	65-80	20-30	NP-5
	4-12	Gravelly loam, loam, silt loam.	ML	A-4	0-10	0-10	75-95	65-85	60-80	55-75	20-30	NP-5
	12-22	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7	0-10	10-40	50-65	45-60	40-55	35-50	35-45	15-25
	22-34	Extremely cobbly clay loam, very gravelly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-50	30-60	20-50	15-45	10-35	45-55	20-30
	34-38	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
151: Patron-----	0-12	Gravelly silt loam.	ML, SM	A-4	0	0-10	70-90	60-75	40-70	35-65	20-30	NP-5
	12-35	Gravelly silty clay loam, gravelly clay loam.	CL, SC	A-7	0	0-10	65-90	55-75	50-70	45-60	40-55	20-30
	35-60	Very gravelly clay loam, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-10	10-30	35-60	25-50	20-45	20-40	40-60	20-35
Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
152: Tansel-----	0-4	Loam-----	ML	A-4	0-10	0-10	85-100	80-90	70-85	65-80	20-30	NP-5
	4-12	Gravelly loam, loam, silt loam.	ML	A-4	0-10	0-10	75-95	65-85	60-80	55-75	20-30	NP-5
	12-22	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7	0-10	10-40	50-65	45-60	40-55	35-50	35-45	15-25
	22-34	Extremely cobbly clay loam, very gravelly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-50	30-60	20-50	15-45	10-35	45-55	20-30
	34-38	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Wockum-----	0-12	Silt loam-----	ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-35	5-10
	12-40	Silt loam, silty clay loam.	CL	A-6	0	0-10	95-100	90-100	80-95	70-85	30-40	10-20
	40-60	Gravelly clay loam, very gravelly loam, cobbly silty clay loam.	GC, CL, SC	A-6	0-10	0-15	50-80	45-75	35-70	30-60	30-40	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
153: Tanksel-----	0-4	Loam-----	ML	A-4	0-10	0-10	85-100	80-90	70-85	65-80	20-30	NP-5
	4-12	Gravelly loam, loam, silt loam.	ML	A-4	0-10	0-10	75-95	65-85	60-80	55-75	20-30	NP-5
	12-22	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7	0-10	10-40	50-65	45-60	40-55	35-50	35-45	15-25
	22-34	Extremely cobbly clay loam, very gravelly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-50	30-60	20-50	15-45	10-35	45-55	20-30
	34-38	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Wockum-----	0-12	Silt loam-----	ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-35	5-10
	12-40	Silt loam, silty clay loam.	CL	A-6	0	0-10	95-100	90-100	80-95	70-85	30-40	10-20
	40-60	Gravelly clay loam, very gravelly loam, cobbly silty clay loam.	CL, SC, GC	A-6	0-10	0-15	50-80	45-75	35-70	30-60	30-40	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
154: Tansel-----	0-4	Loam-----	ML	A-4	0-10	0-10	85-100	80-90	70-85	65-80	20-30	NP-5
	4-12	Gravelly loam, loam, silt loam.	ML	A-4	0-10	0-10	75-95	65-85	60-80	55-75	20-30	NP-5
	12-22	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7	0-10	10-40	50-65	45-60	40-55	35-50	35-45	15-25
	22-34	Extremely cobbly clay loam, very gravelly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-50	30-60	20-50	15-45	10-35	45-55	20-30
	34-38	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Wockum-----	0-12	Silt loam-----	ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-35	5-10
	12-40	Silt loam, silty clay loam.	CL	A-6	0	0-10	95-100	90-100	80-95	70-85	30-40	10-20
	40-60	Gravelly clay loam, very gravelly loam, cobbly silty clay loam.	CL, GC, SC	A-6	0-10	0-15	50-80	45-75	35-70	30-60	30-40	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
155: Terlan-----	0-4	Gravelly loam	CL-ML, CL, SC-SM	A-4	0	0-10	70-85	65-80	55-75	40-60	25-30	5-15
	4-10	Loam-----	CL, CL-ML	A-4	0	0-5	95-100	85-100	75-100	65-90	25-30	5-15
	10-15	Clay loam, loam, gravelly clay loam.	CL, SC, GC	A-6	0	0-15	70-100	65-95	55-90	40-75	30-35	10-20
	15-18	Gravelly clay loam, clay loam, gravelly loam.	GC, CL, SC	A-6	0	0-25	60-85	55-75	45-70	35-55	25-35	10-15
	18-28	Indurated-----	---	---	0	0	---	---	---	---	---	---
	28-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
156: Terlan-----	0-4	Gravelly loam	CL-ML, CL, SC-SM	A-4	0	0-10	70-85	65-80	55-75	40-60	25-30	5-15
	4-10	Loam-----	CL, CL-ML	A-4	0	0-5	95-100	85-100	75-100	65-90	25-30	5-15
	10-15	Clay loam, loam, gravelly clay loam.	CL, GC, SC	A-6	0	0-15	70-100	65-95	55-90	40-75	30-35	10-20
	15-18	Gravelly clay loam, clay loam, gravelly loam.	GC, CL, SC	A-6	0	0-25	60-85	55-75	45-70	35-55	25-35	10-15
	18-28	Indurated-----	---	---	0	0	---	---	---	---	---	---
	28-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
157: Terlan-----	0-9	Loam-----	CL, CL-ML	A-4	0	0-5	95-100	85-100	75-100	65-90	25-30	5-15
	9-14	Clay loam, loam, gravelly clay loam.	CL, SC, GC	A-6	0	0-15	70-100	65-95	55-90	40-75	30-35	10-20
	14-17	Gravelly clay loam, clay loam, gravelly loam.	GC, CL, SC	A-6	0	0-25	60-85	55-75	45-70	35-55	25-35	10-15
	17-27	Indurated-----	---	---	0	0	---	---	---	---	---	---
	27-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
Durtash-----	0-5	Cobbly loam----	CL, CL-ML	A-4, A-6	0	20-35	75-90	70-80	65-75	55-65	25-30	5-15
	5-9	Gravelly clay loam.	CL, CL-ML, GC	A-4, A-6	0	0-10	65-85	60-75	55-70	45-60	40-50	15-25
	9-18	Very gravelly clay loam, very cobbly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-40	30-60	25-50	15-40	5-35	40-60	15-30
	18-28	Indurated-----	---	---	0	0	---	---	---	---	---	---
	28-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
	In				Pct	Pct					Pct	
157: Selah-----	0-9	Silt loam-----	CL, CL-ML	A-4	0	0	95-100	85-100	75-100	65-90	20-25	5-10
	9-14	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	65-85	30-40	10-20
	14-17	Silt loam, silty clay loam, clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	55-85	30-40	10-20
	17-25	Clay loam, gravelly clay loam.	CL, SC, GC	A-6, A-7	0	0-15	65-95	55-90	50-85	45-70	35-45	10-20
	25-35	Indurated-----	---	---	0	0	---	---	---	---	---	---
	35-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
158: Terlan-----	0-9	Loam-----	CL, CL-ML	A-4	0	0-5	95-100	85-100	75-100	65-90	25-30	5-15
	9-14	Clay loam, loam, gravelly clay loam.	CL, SC, GC	A-6	0	0-15	70-100	65-95	55-90	40-75	30-35	10-20
	14-17	Gravelly clay loam, clay loam, gravelly loam.	CL, SC, GC	A-6	0	0-25	60-85	55-75	45-70	35-55	25-35	10-15
	17-27	Indurated-----	---	---	0	0	---	---	---	---	---	---
	27-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
158: Durtash-----	0-5	Cobbly loam----	CL, CL-ML	A-4, A-6	0	20-35	75-90	70-80	65-75	55-65	25-30	5-15
	5-9	Gravelly clay loam.	CL, CL-ML, GC	A-4, A-6	0	0-10	65-85	60-75	55-70	45-60	40-50	15-25
	9-18	Very gravelly clay loam, very cobbly clay loam, extremely gravelly clay.	GC	A-2	0-10	10-40	30-60	25-50	15-40	5-35	40-60	15-30
	18-28	Indurated-----	---	---	0	0	---	---	---	---	---	---
	28-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
Selah-----	0-9	Silt loam-----	CL, CL-ML	A-4	0	0	95-100	85-100	75-100	65-90	20-25	5-10
	9-14	Silt loam, silty clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	65-85	30-40	10-20
	14-17	Silt loam, silty clay loam, clay loam.	CL	A-6	0	0-5	95-100	85-100	75-95	55-85	30-40	10-20
	17-25	Clay loam, gravelly clay loam.	CL, SC, GC	A-6, A-7	0	0-15	65-95	55-90	50-85	45-70	35-45	10-20
	25-35	Indurated-----	---	---	0	0	---	---	---	---	---	---
	35-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
159: Timmerman sandy loam-----	0-3	Sandy loam-----	SM	A-4	0	0	100	100	70-80	40-50	15-25	NP-5
	3-16	Sandy loam, coarse sandy loam, fine sandy loam.	SM	A-2, A-4	0	0	95-100	85-100	55-80	25-50	15-25	NP-5
	16-60	Coarse sand, loamy coarse sand, gravelly coarse sand.	SP, SM, SP-SM	A-1	0	0-15	85-100	60-95	10-40	0-20	---	NP
Timmerman loamy sand-----	0-3	Loamy sand-----	SM	A-2	0	0	100	100	70-80	25-35	---	NP
	3-15	Sandy loam, coarse sandy loam, fine sandy loam.	SM	A-2, A-4	0	0	95-100	85-100	55-80	25-50	15-25	NP-5
	15-60	Coarse sand, loamy coarse sand, gravelly coarse sand.	SM, SP-SM, SP	A-1	0	0-15	85-100	60-95	10-40	0-20	---	NP
160: Tronsen-----	0-7	Stony loam-----	CL-ML, ML, SM, SC-SM	A-4	5-10	10-20	80-90	70-80	55-75	40-70	20-30	NP-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	18-25	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	25-60	Extremely gravelly clay loam, very cobbly clay, very cobbly clay loam.	GC	A-2, A-7	0-10	10-30	25-60	25-50	20-45	20-40	40-50	15-25

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
161: Tronsen-----	In											
	0-7	Stony loam-----	ML, CL-ML, SC-SM, SM	A-4	5-10	10-20	80-90	70-80	55-75	40-70	20-30	NP-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	18-25	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	25-60	Extremely gravelly clay loam, very cobbly clay, very cobbly clay loam.	GC	A-2, A-7	0-10	10-30	25-60	25-50	20-45	20-40	40-50	15-25
162: Vantage-----	0-3	Extremely gravelly loam.	GC	A-2	0-10	15-30	30-45	20-35	15-30	5-20	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-14	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	14-18	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
163: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
164: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
165: Vantage-----	In											
	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-7	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	7-13	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	13-17	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
166: Vantage-----												
	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-7	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	7-13	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	13-17	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
167: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Benwy-----	0-9	Silt loam-----	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	9-14	Silt loam, loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-90	65-80	25-35	5-15
	14-33	Gravelly silt loam, gravelly loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-100	70-95	60-85	50-75	25-35	5-15
	33-45	Gravelly silt loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-95	65-90	55-80	50-70	25-35	5-15
	45-55	Indurated-----	---	---	0	0	---	---	---	---	---	---
	55-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
167: Argabak-----	0-2	Very cobbly loam.	GC-GM, GC, SC, SC-SM	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
168: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
168: Benwy-----	0-9	Silt loam-----	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	9-14	Silt loam, loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-90	65-80	25-35	5-15
	14-33	Gravelly silt loam, gravelly loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-100	70-95	60-85	50-75	25-35	5-15
	33-45	Gravelly silt loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-95	65-90	55-80	50-70	25-35	5-15
	45-55	Indurated-----	---	---	0	0	---	---	---	---	---	---
	55-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
Argabak-----	0-2	Very cobbly loam.	GC, GC-GM, SC-SM, SC	A-2, A-4	0-10	25-35	50-70	40-55	30-45	25-40	20-30	5-10
	2-6	Very gravelly clay loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	6-10	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
169: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	6-12	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	12-24	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	24-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
170: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	6-12	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	12-24	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	24-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
171: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	6-12	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	12-24	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	24-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
172: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	6-12	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	12-24	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	24-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material.	GP	A-1	40-50	40-50	0-10	0-5	0-5	0	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
173: Vantage-----	In											
	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-7	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	7-16	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Niben-----	0-5	Loam-----	CL, CL-ML	A-4, A-6	0	0-5	80-100	75-90	70-85	60-75	25-35	5-15
	5-21	Clay loam-----	CL	A-6	0	0	85-100	75-95	70-90	60-80	35-40	15-20
	21-53	Clay, clay loam	CL	A-7	0	0	90-100	85-95	80-90	70-80	40-50	15-25
	53-60	Clay loam, clay, gravelly clay loam.	CL	A-7	0	0-15	70-100	65-95	55-90	50-80	40-50	15-25
Clerf-----	0-3	Very cobbly loam.	GC	A-6	0-10	30-45	60-75	50-65	45-60	35-50	25-35	10-15
	3-8	Very cobbly clay loam, very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-5	10-40	50-70	40-60	35-55	30-50	30-40	10-20
	8-14	Very gravelly clay, very cobbly clay.	GC	A-2, A-7	0-5	10-40	50-70	40-60	35-55	30-50	50-60	35-40
	14-26	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2	0-10	20-45	35-60	25-55	20-45	15-35	50-60	35-40
	26-28	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
174: Vantage-----	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-8	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	8-17	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	17-21	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Vantage, thin--	0-3	Very cobbly loam.	GC, SC	A-6	0-10	25-45	60-75	50-65	45-60	35-45	25-30	10-15
	3-7	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	7-13	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	13-17	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
175: Vantage-----	0-3	Very stony loam	GC	A-6	10-25	15-20	60-75	50-65	45-60	35-45	25-35	10-15
	3-9	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	9-16	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Vantage, thin---	0-3	Very stony loam	GC	A-6	10-25	15-20	60-75	50-65	45-60	35-45	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	6-14	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	14-18	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
	In				Pct	Pct					Pct	
176: Vantage-----	0-3	Very stony loam	GC	A-6	10-25	15-20	60-75	50-65	45-60	35-45	25-35	10-15
	3-9	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	9-16	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	16-20	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Vantage, thin---	0-3	Very stony loam	GC	A-6	10-25	15-20	60-75	50-65	45-60	35-45	25-35	10-15
	3-6	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6	0-10	15-40	60-75	50-65	45-60	35-50	25-30	10-15
	6-14	Very cobbly clay, extremely cobbly clay, extremely gravelly clay.	GC	A-2, A-7	0-10	25-50	35-60	25-55	20-50	15-45	40-60	20-30
	14-18	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
177: Wanapum-----	0-6	Cobbly loam----	CL-ML, ML	A-4	0-5	20-30	80-90	70-80	65-75	60-70	15-25	NP-10
	6-13	Very gravelly loam, very gravelly clay loam, very cobbly clay loam.	GC, SC	A-2, A-6	0-10	10-30	55-70	45-55	35-45	25-40	30-40	10-20
	13-23	Indurated-----	---	---	0	0	---	---	---	---	---	---
	23-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
178: Wanapum loam----	0-6	Loam-----	CL-ML, ML	A-4	0	0-5	80-100	75-95	70-90	60-85	15-25	NP-10
	6-13	Very gravelly loam, very gravelly clay loam, very cobbly clay loam.	GC, SC	A-2, A-6	0-10	10-30	55-70	45-55	35-45	25-40	30-40	10-20
	13-23	Indurated-----	---	---	0	0	---	---	---	---	---	---
	23-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In		Pct	Pct						Pct
178: Wanapum cobbly loam-----	0-6	Cobbly loam----	CL-ML, ML	A-4	0-5	20-30	80-90	70-80	65-75	60-70	15-25	NP-10
	6-13	Very gravelly loam, very gravelly clay loam, very cobbly clay loam.	GC, SC	A-2, A-6	0-10	10-30	55-70	45-55	35-45	25-40	30-40	10-20
	13-23	Indurated-----	---	---	0	0	---	---	---	---	---	---
	23-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
179: Wanapum loam----	0-6	Loam-----	CL-ML, ML	A-4	0	0-5	80-100	75-95	70-90	60-85	15-25	NP-10
	6-13	Very gravelly loam, very gravelly clay loam, very cobbly clay loam.	GC, SC	A-2, A-6	0-10	10-30	55-70	45-55	35-45	25-40	30-40	10-20
	13-23	Indurated-----	---	---	0	0	---	---	---	---	---	---
	23-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
179: Wanapum cobbly loam-----	0-6	Cobbly loam----	CL-ML, ML	A-4	0-5	20-30	80-90	70-80	65-75	60-70	15-25	NP-10
	6-13	Very gravelly loam, very gravelly clay loam, very cobbly clay loam.	GC, SC	A-2, A-6	0-10	10-30	55-70	45-55	35-45	25-40	30-40	10-20
	13-23	Indurated-----	---	---	0	0	---	---	---	---	---	---
	23-60	Stratified indurated material with lenses of very gravelly sandy loam.	---	---	0	0	---	---	---	---	---	---
180: Whiskeydick----	0-4	Very cobbly loam.	GC-GM, SC-SM	A-2, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	10-30	Extremely cobbly clay, very cobbly clay, very gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
181: Whiskeydick-----	0-4	Very cobbly loam.	GC-GM, SC-SM	A-2, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	10-30	Extremely cobbly clay, very cobbly clay, very gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
182: Whiskeydick-----	0-4	Very cobbly loam.	GC-GM, SC-SM	A-2, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	10-30	Extremely cobbly clay, very cobbly clay, very gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
182: Tronsen-----	0-7	Stony loam-----	CL-ML, ML, SM, SC-SM	A-4	5-10	10-20	80-90	70-80	55-75	40-70	20-30	NP-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	18-25	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	25-60	Extremely gravelly clay loam, very cobbly clay, very cobbly clay loam.	GC	A-2, A-7	0-10	10-30	25-60	25-50	20-45	20-40	40-50	15-25
Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
183: Whiskeydick-----	In				Pct	Pct					Pct	
	0-4	Very cobbly loam.	GC-GM, SC-SM	A-2, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	10-30	Extremely cobbly clay, very cobbly clay, very gravelly clay.	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Tronsen-----	0-7	Stony loam-----	CL-ML, SM, ML, SC-SM	A-4	5-10	10-20	80-90	70-80	55-75	40-70	20-30	NP-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	18-25	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	25-60	Extremely gravelly clay loam, very cobbly clay, very cobbly clay loam.	GC	A-2, A-7	0-10	10-30	25-60	25-50	20-45	20-40	40-50	15-25

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
183: Camaspach-----	In											
	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
184: Whiskeydick-----												
	0-4	Very cobbly loam.	GC-GM, SC-SM	A-2, A-4	0-10	30-45	60-75	50-65	40-55	30-45	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	0-10	20-40	60-75	50-65	45-60	35-50	40-50	15-25
	10-30	Extremely cobbly clay, very cobbly clay, very gravelly clay	GC, SC	A-2, A-7	5-10	15-50	45-75	25-55	20-50	15-45	45-55	20-30
	30-34	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
184: Tronsen-----	0-7	Stony loam-----	CL-ML, ML, SM, SC-SM	A-4	5-10	10-20	80-90	70-80	55-75	40-70	20-30	NP-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	18-25	Very gravelly clay loam, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	0-10	10-20	50-70	40-60	35-60	30-50	40-50	15-25
	25-60	Extremely gravelly clay loam, very cobbly clay, very cobbly clay loam.	GC	A-2, A-7	0-10	10-30	25-60	25-50	20-45	20-40	40-50	15-25
Camaspach-----	0-2	Very cobbly loam.	SC	A-4, A-6	0-10	25-45	70-80	60-70	55-65	40-50	25-35	5-15
	2-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-7	0-10	10-35	50-65	45-60	30-50	25-45	40-45	25-35
	12-19	Extremely cobbly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	0-10	25-55	35-60	25-55	20-45	15-35	40-60	25-40
	19-23	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
185: Winchester-----	0-6	Sand	SM	A-1, A-2	0	0-5	95-100	90-100	35-55	10-20	---	NP
	6-17	Sand, coarse sand, loamy sand.	SM	A-1, A-3, A-2	0	0-5	95-100	85-100	30-55	10-30	---	NP
	17-60	Sand, coarse sand.	SP, SP-SM	A-1, A-2, A-3	0	0-5	95-100	85-100	30-55	0-10	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
185: Sagehill-----	0-4	Fine sandy loam	ML, SM	A-4	0	0-5	95-100	95-100	90-95	45-60	20-25	NP-5
	4-35	Fine sandy loam, very fine sandy loam, silt loam.	ML, SM	A-4	0	0-10	90-100	85-100	70-95	40-70	20-25	NP-5
	35-50	Fine sandy loam, very fine sandy loam, silt loam.	ML, SM	A-4	0	0-10	90-100	85-100	70-95	40-70	20-25	NP-5
	50-60	Fine sandy loam, gravelly fine sandy loam, very fine sandy loam.	ML, SM	A-2, A-4	0	0-10	75-100	70-90	60-85	25-60	20-25	NP
Burbank-----	0-5	Very gravelly loamy sand.	GM, SM	A-1, A-2	0-5	15-35	45-70	35-60	20-50	10-30	---	NP
	5-17	Very gravelly loamy sand, very gravelly loamy fine sand.	GM	A-1	0-5	10-30	45-60	35-50	20-40	10-20	---	NP
	17-60	Very gravelly sand, extremely gravelly coarse sand, very cobbly loamy sand.	GM, GP, GP-GM	A-1	0-10	10-40	20-55	10-50	5-30	0-20	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
186: Wipple-----	0-6	Cobbly clay loam.	CL	A-6	0	25-40	80-100	70-100	65-100	50-80	30-35	10-15
	6-20	Very gravelly clay, very cobbly clay, extremely cobbly clay.	CH, GC, CL	A-2, A-7	0-10	5-40	45-70	35-60	25-60	20-55	45-65	30-50
	20-26	Very gravelly clay, very cobbly clay, extremely cobbly clay.	CL, CH, GC	A-2, A-7	0-10	5-40	45-70	35-60	25-60	20-55	45-65	30-50
	26-60	Very cobbly clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-45	45-70	35-60	30-60	25-50	30-40	15-20
187: Wipple-----	0-6	Cobbly clay loam.	CL	A-6	0	25-40	80-100	70-100	65-100	50-80	30-35	10-15
	6-22	Very gravelly clay, very cobbly clay, extremely cobbly clay.	CH, GC, CL	A-2, A-7	0-10	5-40	45-70	35-60	25-60	20-55	45-65	30-50
	22-25	Very gravelly clay, very cobbly clay, extremely cobbly clay.	CH, CL, GC	A-2, A-7	0-10	5-40	45-70	35-60	25-60	20-55	45-65	30-50
	25-60	Very cobbly clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-45	45-70	35-60	30-60	25-50	30-40	15-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
188: Wipple-----	0-4	Cobbly clay loam.	CL	A-6	0	25-40	80-100	70-100	65-100	50-80	30-35	10-15
	4-19	Very gravelly clay, very cobbly clay, extremely cobbly clay.	CH, CL, GC	A-2, A-7	0-10	5-40	45-70	35-60	25-60	20-55	45-65	30-50
	19-23	Very gravelly clay, very cobbly clay, extremely cobbly clay.	CL, CH, GC	A-2, A-7	0-10	5-40	45-70	35-60	25-60	20-55	45-65	30-50
	23-60	Very cobbly clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	0-10	15-45	45-70	35-60	30-60	25-50	30-40	15-20
189: Wockum-----	0-12	Silt loam-----	ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-35	5-10
	12-40	Silt loam, silty clay loam.	CL	A-6	0	0-10	95-100	90-100	80-95	70-85	30-40	10-20
	40-60	Gravelly clay loam, very gravelly loam, cobbly silty clay loam.	CL, SC, GC	A-6	0-10	0-15	50-80	45-75	35-70	30-60	30-40	10-20
190: Wockum-----	0-12	Silt loam-----	ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-35	5-10
	12-40	Silt loam, silty clay loam.	CL	A-6	0	0-10	95-100	90-100	80-95	70-85	30-40	10-20
	40-60	Gravelly clay loam, very gravelly loam, cobbly silty clay loam.	GC, CL, SC	A-6	0-10	0-15	50-80	45-75	35-70	30-60	30-40	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
191: Wockum-----	0-12	Silt loam-----	ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-35	5-10
	12-40	Silt loam, silty clay loam.	CL	A-6	0	0-10	95-100	90-100	80-95	70-85	30-40	10-20
	40-60	Gravelly clay loam, very gravelly loam, cobbly silty clay loam.	CL, SC, GC	A-6	0-10	0-15	50-80	45-75	35-70	30-60	30-40	10-20
Blint-----	0-6	Very cobbly loam.	GC-GM, GM	A-4	0-10	30-35	60-75	50-65	45-60	40-50	20-30	NP-5
	6-14	Very gravelly loam, very gravelly silt loam.	GC-GM, GM	A-2	0-10	5-25	45-55	35-45	30-40	20-35	20-30	NP-5
	14-22	Very gravelly loam, very gravelly silt loam.	GC	A-2	0-10	5-25	45-55	35-45	30-40	20-35	30-40	10-15
	22-37	Extremely gravelly loam, extremely cobbly silt loam, very cobbly clay loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	37-40	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
192: Wockum-----	0-12	Silt loam-----	ML	A-4	0	0-5	95-100	95-100	85-95	75-85	20-35	5-10
	12-40	Silt loam, silty clay loam.	CL	A-6	0	0-10	95-100	90-100	80-95	70-85	30-40	10-20
	40-60	Gravelly clay loam, very gravelly loam, cobbly silty clay loam.	CL, SC, GC	A-6	0-10	0-15	50-80	45-75	35-70	30-60	30-40	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
	In				Pct	Pct						Pct
192: Blint-----	0-6	Very cobbly loam.	GC-GM, GM	A-4	0-10	30-35	60-75	50-65	45-60	40-50	20-30	NP-5
	6-14	Very gravelly loam, very gravelly silt loam.	GC-GM, GM	A-2	0-10	5-25	45-55	35-45	30-40	20-35	20-30	NP-5
	14-22	Very gravelly loam, very gravelly silt loam.	GC	A-2	0-10	5-25	45-55	35-45	30-40	20-35	30-40	10-15
	22-37	Extremely gravelly loam, extremely cobbly silt loam, very cobbly clay loam.	GC	A-2, A-6	0-10	15-40	35-60	25-50	20-45	15-40	30-40	10-15
	37-40	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Windry-----	0-3	Very cobbly loam.	GC-GM	A-4	0-10	30-50	50-75	45-70	40-65	35-60	25-30	5-10
	3-7	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC-GM	A-2, A-4	0-10	10-30	50-70	35-60	35-55	30-50	25-30	5-10
	7-15	Extremely gravelly clay loam, extremely cobbly clay loam, very cobbly loam.	GC, GM	A-6, A-2, A-7	0-10	20-60	35-60	25-55	20-50	15-45	30-40	10-20
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
193: Zen-----	0-10	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-22	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	22-27	Silt loam, clay loam, gravelly loam.	CL, SC-SM, SC	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	27-31	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
194: Zen-----	0-10	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-22	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	22-27	Silt loam, clay loam, gravelly loam.	CL, SC-SM, SC	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	27-31	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
195: Zen-----	0-10	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-22	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	22-27	Silt loam, clay loam, gravelly loam.	CL, SC, SC-SM	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	27-31	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
	In											
196: Zen-----	0-10	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-22	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	22-27	Silt loam, clay loam, gravelly loam.	SC, CL, SC-SM	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	27-31	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Benwy-----	0-4	Silt loam-----	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	4-9	Silt loam, loam	ML	A-4	0	0	90-100	85-100	75-90	65-80	20-25	NP-5
	9-14	Silt loam, loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-90	65-80	25-35	5-15
	14-33	Gravelly silt loam, gravelly loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-100	70-95	60-85	50-75	25-35	5-15
	33-45	Gravelly silt loam, gravelly clay loam, loam.	CL, CL-ML	A-4, A-6	0	0-10	70-95	65-90	55-80	50-70	25-35	5-15
	45-49	Indurated-----	---	---	0	0	---	---	---	---	---	---
Laric-----	0-3	Very gravelly loam.	GC-GM, GM	A-1, A-2, A-4	0-5	0-10	40-60	30-50	25-45	20-40	20-30	NP-10
	3-8	Gravelly clay loam, gravelly loam.	CL	A-6	0	0-15	70-85	60-75	55-70	50-65	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
197: Zen-----	0-10	Silt loam-----	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-22	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	22-27	Silt loam, clay loam, gravelly loam.	CL, SC-SM, SC	A-4, A-6	0	0-10	70-100	65-95	55-65	40-55	25-35	5-15
	27-31	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
197: Marlic-----	0-6	Loam-----	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-95	75-90	70-85	25-30	5-15
	6-12	Clay loam-----	CL	A-6, A-7	0	0-5	85-100	80-95	75-90	70-85	35-45	15-20
	12-15	Clay loam, gravelly clay loam.	CL	A-7	0	0-15	65-95	60-90	55-85	50-80	40-50	15-20
	15-19	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
Laric-----	0-3	Very gravelly loam.	GC-GM, GM	A-1, A-2, A-4	0-5	0-10	40-60	30-50	25-45	20-40	20-30	NP-10
	3-8	Gravelly clay loam, gravelly loam.	CL	A-6	0	0-15	70-85	60-75	55-70	50-65	30-40	10-15
	8-12	Unweathered bedrock.	---	---	0	0	---	---	---	---	---	---
198: Torrifluvents, very cobbly----	0-2	Very cobbly very fine sandy loam.	GC-GM, GM, SM, SC-SM	A-1, A-2	0-5	35-50	55-80	45-70	30-50	20-30	15-20	NP-5
	2-60	Extremely cobbly sand, gravelly sandy loam, extremely gravelly loamy sand.	GP, GM, SM, SP	A-1	0-5	10-45	30-80	20-65	10-40	0-25	0-14	NP
Torrifluvents, gravelly-----	0-2	Gravelly very fine sandy loam.	GC-GM, SM, GM, SC-SM	A-2	0	0-5	60-85	50-75	45-70	25-35	15-20	NP-5
	2-60	Extremely cobbly sand, gravelly sandy loam, extremely gravelly loamy sand.	GP, GM, SM, SP	A-1	0-5	10-45	30-80	20-65	10-40	0-25	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
199: Haploxerolls sandy loam-----	0-14	Sandy loam-----	ML	A-4	0	0	100	100	80-90	60-70	20-30	NP-5
	14-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	0	100	100	95-100	60-90	20-30	NP-5
Haploxerolls silt loam-----	0-14	Silt loam-----	ML	A-4	0	0	100	100	95-100	80-90	20-30	NP-5
	14-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	0	100	100	95-100	60-90	20-30	NP-5
200: Malaga, cobbly--	0-4	Cobbly sandy loam.	ML	A-4	0-10	15-25	85-95	80-90	65-75	50-65	20-30	NP-5
	4-9	Gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	0	0-10	75-85	55-75	45-60	25-50	20-30	NP-5
	9-15	Very gravelly fine sandy loam, extremely gravelly sandy loam, extremely gravelly loam.	GM	A-1, A-2	0	0-15	30-60	20-55	15-40	10-30	20-30	NP-5
	15-60	Extremely gravelly loamy sand, extremely gravelly coarse sand, very cobbly sand.	GP, GP-GM, SP-SM, SP	A-1	0-10	10-35	30-60	20-55	15-30	0-10	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				Pct	Pct				
200: Malaga, stony---	0-4	Stony sandy loam.	SM	A-2, A-4	5-10	5-25	65-90	55-80	40-70	30-50	20-30	NP-5
	4-9	Gravelly fine sandy loam, gravelly sandy loam, gravelly loam.	SM	A-2, A-4	0	0-10	75-85	55-75	45-60	25-50	20-30	NP-5
	9-15	Very gravelly fine sandy loam, extremely gravelly sandy loam, extremely gravelly loam.	GM	A-1, A-2	0	0-15	30-60	20-55	15-40	10-30	20-30	NP-5
	15-60	Extremely gravelly loamy sand, extremely gravelly coarse sand, very cobbly sand.	GP-GM, GP, SP, SP-SM	A-1	0-10	10-35	30-60	20-55	15-30	0-10	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches					Pct	Pct
201: Semal, cobbly---	In				Pct	Pct						Pct
	0-4	Cobbly sandy loam.	ML	A-4	0-5	15-25	85-95	75-90	60-80	50-65	20-30	NP-5
	4-12	Very gravelly fine sandy loam, gravelly fine sandy loam, very gravelly sandy loam.	GM, SM	A-1, A-4, A-2	0-5	0-30	50-80	40-70	25-60	15-45	20-30	NP-5
	12-26	Extremely gravelly loamy sand, very gravelly loamy sand, extremely gravelly loamy coarse sand.	GM, GP-GM	A-1, A-2	0-10	10-35	35-65	25-55	15-45	5-30	20-30	NP-5
	26-55	Cemented-----	---	---	---	---	---	---	---	---	---	---
	55-60	Extremely cobbly loamy coarse sand, extremely gravelly loamy coarse sand, extremely cobbly coarse sand, extremely gravelly coarse sand.	GM, GP-GM	A-1, A-2	0-10	10-60	30-65	20-55	10-40	5-30	20-30	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
201: Semal, very cobbley-----	0-5	Very cobbly sandy loam.	GM, SM	A-1, A-4, A-2	0-10	25-45	55-85	45-75	30-65	20-50	20-30	NP-5
	5-14	Very gravelly fine sandy loam, gravelly fine sandy loam, very gravelly sandy loam.	GM, SM	A-1, A-2, A-4	0-5	0-30	50-80	40-70	25-60	15-45	20-30	NP-5
	14-27	Extremely gravelly loamy sand, very gravelly loamy sand, extremely gravelly loamy coarse sand.	GM, GP-GM	A-1, A-2	0-10	10-35	35-65	25-55	15-45	5-30	20-30	NP-5
	27-55	Cemented-----	---	---	---	---	---	---	---	---	---	---
	55-60	Extremely cobbley loamy coarse sand, extremely gravelly loamy coarse sand, extremely cobbley coarse sand, extremely gravelly coarse sand.	GM, GP-GM	A-1, A-2	0-10	10-60	30-65	20-55	10-40	5-30	20-30	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
201: Semal, stony----	0-4	Stony sandy loam.	SM	A-2, A-4	5-10	5-25	65-90	55-80	40-70	30-50	20-30	NP-5
	4-13	Very gravelly fine sandy loam, gravelly fine sandy loam, very gravelly sandy loam.	GM, SM	A-2, A-1, A-4	0-5	0-30	50-80	40-70	25-60	15-45	20-30	NP-5
	13-22	Extremely gravelly loamy sand, very gravelly loamy sand, extremely gravelly loamy coarse sand.	GM, GP-GM	A-1, A-2	0-10	10-35	35-65	25-55	15-45	5-30	20-30	NP-5
	22-55	Cemented-----	---	---	---	---	---	---	---	---	---	---
	55-60	Extremely cobbly loamy coarse sand, extremely gravelly loamy coarse sand, extremely cobbly coarse sand, extremely gravelly coarse sand.	GM, GP-GM	A-1, A-2	0-10	10-60	30-65	20-55	10-40	5-30	20-30	NP-5
202: Water.												
203: Pits-----	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
204: Dam.												

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
205: Arents-----	0-60	Extremely gravelly sand, very cobbly coarse sand, extremely gravelly loamy sand.	GM, GP, GP-GM	A-1	0	15-50	35-55	10-50	5-30	0-20	---	NP
206: Burbank-----	0-4	Loamy fine sand	SM	A-2	0	0-5	95-100	85-95	60-80	15-35	---	NP
	4-23	Loamy fine sand, gravelly loamy sand, gravelly loamy fine sand.	SM	A-2	0	0-5	85-95	70-90	60-80	15-35	---	NP
	23-60	Extremely gravelly sand, very cobbly coarse sand, extremely gravelly loamy sand.	GM, GP-GM, GP	A-1	0	15-50	35-55	10-50	5-30	0-20	---	NP
207: Rock Creek-----	0-2	Very stony silt loam.	ML	A-4	5-25	0-10	85-95	70-90	65-85	55-75	20-30	NP-5
	2-10	Extremely cobble clay loam, very cobble clay, very gravelly clay.	GM	A-2, A-7	0-10	10-60	35-70	25-50	20-45	15-40	40-50	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
208: Kiona-----	0-5	Stony silt loam	ML	A-4	0-10	5-10	90-95	80-90	70-85	60-75	20-30	NP-5
	5-14	Cobbly silt loam, very cobbly loam, cobbly very fine sandy loam.	ML, GM, SM	A-4	0-10	20-35	60-85	50-75	45-70	35-65	20-30	NP-5
	14-60	Extremely cobbly loam, very cobbly silt loam, very cobbly sandy loam.	GM	A-1, A-4, A-2	0-10	25-45	45-70	40-60	35-50	15-45	15-25	NP-5
209: Licksillet----	0-3	Very stony silt loam.	CL, CL-ML	A-4	10-15	10-15	80-90	70-80	60-70	50-60	25-30	5-10
	3-20	Very gravelly clay loam, very gravelly loam, very cobbly loam.	GC, GM	A-2, A-6, A-7	0-5	15-50	40-65	35-50	25-50	20-40	35-45	10-20
	20-24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
210: Starbuck-----	0-6	Silt loam-----	ML	A-4	0	0-5	100	90-100	80-90	70-80	20-30	NP-5
	6-16	Silt loam, fine sandy loam, gravelly silt loam.	GM, ML, SM	A-2, A-4	0	0-15	65-100	60-95	50-70	30-70	20-30	NP-5
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
211: Starbuck-----	0-6	Silt loam-----	ML	A-4	0	0-5	100	90-100	80-90	70-80	20-30	NP-5
	6-16	Silt loam, fine sandy loam, gravelly silt loam.	GM, ML, SM	A-2, A-4	0	0-15	65-100	60-95	50-70	30-70	20-30	NP-5
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
212: Willis-----	0-6	Silt loam-----	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	6-22	Silt loam-----	ML	A-4	0	0	100	95-100	95-100	85-95	20-30	NP-5
	22-34	Silt loam-----	ML	A-4	0	0	95-100	95-100	95-100	80-90	20-30	NP-5
	34-38	Indurated-----	---	---	---	---	---	---	---	---	---	---
	38-42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
213: Willis-----	0-6	Silt loam-----	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	6-22	Silt loam-----	ML	A-4	0	0	100	95-100	95-100	85-95	20-30	NP-5
	22-34	Silt loam-----	ML	A-4	0	0	95-100	95-100	95-100	80-90	20-30	NP-5
	34-38	Indurated-----	---	---	---	---	---	---	---	---	---	---
	38-42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
214: Willis-----	0-6	Silt loam-----	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	6-22	Silt loam-----	ML	A-4	0	0	100	95-100	95-100	85-95	20-30	NP-5
	22-34	Silt loam-----	ML	A-4	0	0	95-100	95-100	95-100	80-90	20-30	NP-5
	34-38	Indurated-----	---	---	---	---	---	---	---	---	---	---
	38-42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
215: Bakeoven-----	0-4	Very cobbly silt loam.	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	4-10	Very gravelly clay loam, very cobbly loam, very gravelly loam.	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55	35-50	30-40	5-15
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
1: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
2: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
3: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
4: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
5: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
6: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
7: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-6	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	6-14	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	14-18	---	---	---	---	---	---	---	---			
8: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
9: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
9: Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
10: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
11: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	7	38
	4-11	38-50	1.25-1.45	0.06-0.2	0.09-0.12	3.0-5.9	1.0-2.0	.10	.28			
	11-22	45-55	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.05	.24			
	22-26	---	---	---	---	---	---	---	---			
12: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	7	38
	4-11	38-50	1.25-1.45	0.06-0.2	0.09-0.12	3.0-5.9	1.0-2.0	.10	.28			
	11-22	45-55	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.05	.24			
	22-26	---	---	---	---	---	---	---	---			
13: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
Windry-----	0-3	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-3.0	.15	.43	1	7	38
	3-7	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	7-15	20-30	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	15-19	---	---	---	---	---	---	---	---			
14: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
Zen-----	0-10	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	10-22	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	22-27	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	27-31	---	---	---	---	---	---	---	---			
Grinrod-----	0-4	15-20	1.15-1.35	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	2	7	38
	4-11	15-20	1.15-1.35	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37			
	11-25	24-35	1.30-1.50	0.2-0.6	0.05-0.12	0.0-2.9	0.5-2.0	.05	.37			
	25-29	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
15: Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
Zen-----	0-10	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	10-22	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	22-27	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	27-31	---	---	---	---	---	---	---	---			
Grinrod-----	0-4	15-20	1.15-1.35	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	2	7	38
	4-11	15-20	1.15-1.35	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37			
	11-25	24-35	1.30-1.50	0.2-0.6	0.05-0.12	0.0-2.9	0.5-2.0	.05	.37			
	25-29	---	---	---	---	---	---	---	---			
16: Argids-----	0-4	2-5	1.25-1.45	20-100	0.05-0.08	0.0-2.9	0.5-1.0	.24	.28	3	3	86
	4-24	20-30	1.10-1.30	0.6-2	0.09-0.14	0.0-2.9	0.0-0.5	.15	.32			
	24-60	0-5	1.35-1.55	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.24			
17: Argids-----	0-10	5-15	1.20-1.40	2-6	0.10-0.14	0.0-2.9	0.5-1.0	.28	.32	3	4	86
	10-35	20-30	1.10-1.30	0.6-2	0.09-0.14	0.0-2.9	0.0-0.5	.15	.32			
	35-60	0-5	1.35-1.55	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.24			
18: Argixerolls-----	0-15	20-27	1.20-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.37	.43	3	6	48
	15-43	27-40	1.25-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-2.0	.24	.32			
	43-60	30-60	1.35-1.65	0.06-0.2	0.08-0.11	3.0-5.9	0.0-2.0	.10	.28			
Durixerolls-----	0-9	18-27	1.15-1.40	0.6-2	0.09-0.12	0.0-2.9	1.0-2.0	.10	.37	2	7	38
	9-12	20-40	1.30-1.50	0.2-0.6	0.09-0.12	3.0-5.9	0.0-1.0	.10	.37			
	12-21	20-40	1.30-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-2.0	.10	.37			
	21-31	---	---	---	---	---	---	---	---			
	31-60	---	---	---	---	---	---	---	---			
19: Argixerolls-----	0-6	27-35	1.20-1.35	0.6-2	0.11-0.14	3.0-5.9	1.0-2.0	.28	.32	3	7	38
	6-60	30-60	1.35-1.65	0.06-0.2	0.08-0.11	3.0-5.9	0.0-2.0	.10	.28			
Durixerolls-----	0-6	27-30	1.15-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37	2	7	38
	6-14	20-40	1.30-1.50	0.2-0.6	0.09-0.12	3.0-5.9	0.0-1.0	.10	.37			
	14-23	20-40	1.30-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-2.0	.10	.37			
	23-33	---	---	---	---	---	---	---	---			
	33-60	---	---	---	---	---	---	---	---			
20: Benwy-----	0-4	10-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	4-10	10-15	1.20-1.30	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.55			
	10-37	18-28	1.25-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.55			
	37-60	18-28	1.25-1.40	0.6-2	0.14-0.19	0.0-2.9	0.0-1.0	.32	.43			
21: Benwy-----	0-4	10-15	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	4-9	10-15	1.15-1.35	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.49	.49			
	9-14	22-28	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.49			
	14-33	22-28	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.43	.49			
	33-45	22-28	1.30-1.50	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0	.32	.43			
	45-49	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
22: Benwy-----	0-4	10-15	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	4-9	10-15	1.15-1.35	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.49	.49			
	9-14	22-28	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.49			
	14-33	22-28	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.43	.49			
	33-45	22-28	1.30-1.50	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0	.32	.43			
	45-49	---	---	---	---	---	---	---	---			
23: Benwy-----	0-4	10-15	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	4-9	10-15	1.15-1.35	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.49	.49			
	9-14	22-28	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.49			
	14-33	22-28	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.43	.49			
	33-45	22-28	1.30-1.50	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0	.32	.43			
	45-49	---	---	---	---	---	---	---	---			
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
24: Benwy-----	0-4	10-15	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	4-9	10-15	1.15-1.35	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.49	.49			
	9-14	22-28	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.49			
	14-33	22-28	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.43	.49			
	33-45	22-28	1.30-1.50	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0	.32	.43			
	45-49	---	---	---	---	---	---	---	---			
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
25: Blint-----	0-6	18-23	1.15-1.30	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.43	2	4	86
	6-14	18-23	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.43			
	14-22	18-23	1.25-1.45	0.2-0.6	0.09-0.13	0.0-2.9	0.5-2.0	.15	.43			
	22-37	23-33	1.25-1.45	0.2-0.6	0.03-0.13	0.0-2.9	0.5-2.0	.10	.55			
	37-41	---	---	---	---	---	---	---	---			
26: Blint-----	0-6	18-23	1.15-1.30	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.43	2	4	86
	6-14	18-23	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.43			
	14-22	18-23	1.25-1.45	0.2-0.6	0.09-0.13	0.0-2.9	0.5-2.0	.15	.43			
	22-37	23-33	1.25-1.45	0.2-0.6	0.03-0.13	0.0-2.9	0.5-2.0	.10	.55			
	37-41	---	---	---	---	---	---	---	---			
27: Blint-----	0-6	18-23	1.15-1.30	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.43	2	4	86
	6-14	18-23	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.43			
	14-22	18-23	1.25-1.45	0.2-0.6	0.09-0.13	0.0-2.9	0.5-2.0	.15	.43			
	22-37	23-33	1.25-1.45	0.2-0.6	0.03-0.13	0.0-2.9	0.5-2.0	.10	.55			
	37-41	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
27: Windry-----	0-3	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-3.0	.15	.43	1	7	38
	3-7	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	7-15	20-30	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	15-19	---	---	---	---	---	---	---	---			
28: Brehm-----	0-4	15-18	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-10	18-23	1.30-1.50	0.2-0.6	0.19-0.21	0.0-2.9	1.0-2.0	.37	.43			
	10-24	25-35	1.30-1.50	0.2-0.6	0.10-0.14	3.0-5.9	0.5-2.0	.15	.43			
	24-34	---	---	---	---	---	---	---	---			
	34-60	---	---	---	---	---	---	---	---			
29: Brehm-----	0-4	15-18	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-10	18-23	1.30-1.50	0.2-0.6	0.19-0.21	0.0-2.9	1.0-2.0	.37	.43			
	10-24	25-35	1.30-1.50	0.2-0.6	0.10-0.14	3.0-5.9	0.5-2.0	.15	.43			
	24-34	---	---	---	---	---	---	---	---			
	34-60	---	---	---	---	---	---	---	---			
Gorskel-----	0-5	15-18	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	1	5	56
	5-10	20-27	1.25-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.20	.49			
	10-16	20-35	1.25-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.15	.43			
	16-26	---	---	---	---	---	---	---	---			
	26-60	---	---	---	---	---	---	---	---			
Gorst-----	0-6	16-22	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	1	5	56
	6-14	18-25	1.30-1.50	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.55	.55			
	14-24	---	---	---	---	---	---	---	---			
	24-60	---	---	---	---	---	---	---	---			
30: Caliralls-----	0-8	15-20	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	8-30	25-35	1.20-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-2.0	.20	.49			
	30-42	25-35	1.30-1.50	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	42-60	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.49			
31: Caliralls-----	0-8	15-20	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	8-30	25-35	1.20-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-2.0	.20	.49			
	30-42	25-35	1.30-1.50	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	42-60	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.49			
32: Caliralls-----	0-8	15-20	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	8-30	25-35	1.20-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-2.0	.20	.49			
	30-42	25-35	1.30-1.50	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	42-60	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.49			
Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-6	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	6-12	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	12-24	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	24-28	---	---	---	---	---	---	---	---			
33: Caliralls-----	0-8	15-20	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	8-30	25-35	1.20-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-2.0	.20	.49			
	30-42	25-35	1.30-1.50	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	42-60	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.49			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
33: Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-6	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	6-12	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	12-24	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	24-28	---	---	---	---	---	---	---	---			
34: Caliralls-----	0-8	15-20	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	8-30	25-35	1.20-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-2.0	.20	.49			
	30-42	25-35	1.30-1.50	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	42-60	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.49			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
35: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
36: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
37: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-5	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	5-13	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	13-17	---	---	---	---	---	---	---	---			
38: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-5	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	5-13	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	13-17	---	---	---	---	---	---	---	---			
39: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
Colockum-----	0-4	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	4-33	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.43	.43			
	33-60	22-35	1.25-1.45	0.2-0.6	0.14-0.17	3.0-5.9	0.0-1.0	.28	.37			
40: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
40: Tanksel-----	0-4	23-27	1.15-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-3.0	.32	.37	2	2	134
	4-12	23-27	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.37			
	12-22	30-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.32			
	22-34	35-50	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.10	.32			
	34-38	---	---	---	---	---	---	---	---			
41: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
Tanksel-----	0-4	23-27	1.15-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-3.0	.32	.37	2	3	86
	4-11	23-27	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.37			
	11-23	30-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.32			
	23-30	35-50	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.10	.32			
	30-34	---	---	---	---	---	---	---	---			
Lainand-----	0-4	18-25	1.15-1.30	0.6-2	0.17-0.19	0.0-2.9	2.0-3.0	.28	.37	5	3	86
	4-22	18-25	1.20-1.45	0.2-0.6	0.08-0.11	3.0-5.9	1.0-3.0	.10	.37			
	22-43	25-35	1.30-1.40	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.10	.37			
	43-47	---	---	---	---	---	---	---	---			
42: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	7	38
	4-11	38-50	1.25-1.45	0.06-0.2	0.09-0.12	3.0-5.9	1.0-2.0	.10	.28			
	11-22	45-55	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.05	.24			
	22-26	---	---	---	---	---	---	---	---			
43: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	8	0
	4-10	38-50	1.25-1.45	0.06-0.2	0.06-0.12	3.0-5.9	1.0-2.0	.10	.28			
	10-30	45-55	1.30-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	30-34	---	---	---	---	---	---	---	---			
44: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	8	0
	4-10	38-50	1.25-1.45	0.06-0.2	0.06-0.12	3.0-5.9	1.0-2.0	.10	.28			
	10-30	45-55	1.30-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	30-34	---	---	---	---	---	---	---	---			
45: Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
45: Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	8	0
	4-10	38-50	1.25-1.45	0.06-0.2	0.06-0.12	3.0-5.9	1.0-2.0	.10	.28			
	10-30	45-55	1.30-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	30-34	---	---	---	---	---	---	---	---			
46: Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-6	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	6-12	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	12-24	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	24-28	---	---	---	---	---	---	---	---			
47: Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-6	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	6-12	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	12-24	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	24-28	---	---	---	---	---	---	---	---			
48: Colockum-----	0-4	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	4-33	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.43	.43			
	33-60	22-35	1.25-1.45	0.2-0.6	0.14-0.17	3.0-5.9	0.0-1.0	.28	.37			
49: Colockum-----	0-4	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	4-33	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.43	.43			
	33-60	22-35	1.25-1.45	0.2-0.6	0.14-0.17	3.0-5.9	0.0-1.0	.28	.37			
50: Colockum-----	0-4	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	4-33	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.43	.43			
	33-60	22-35	1.25-1.45	0.2-0.6	0.14-0.17	3.0-5.9	0.0-1.0	.28	.37			
51: Colockum-----	0-4	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	4-33	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.43	.43			
	33-60	22-35	1.25-1.45	0.2-0.6	0.14-0.17	3.0-5.9	0.0-1.0	.28	.37			
Tronsen-----	0-7	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.37	5	6	48
	7-18	35-50	1.20-1.40	0.2-0.6	0.10-0.12	3.0-5.9	1.0-3.0	.15	.28			
	18-25	35-50	1.20-1.40	0.06-0.2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.28			
	25-60	35-50	1.20-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.5-1.0	.10	.32			
52: Disage-----	0-4	20-25	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	4-9	35-40	1.25-1.40	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32			
	9-18	35-55	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	18-22	---	---	---	---	---	---	---	---			
53: Disage-----	0-4	20-25	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	4-9	35-40	1.25-1.40	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32			
	9-18	35-55	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	18-22	---	---	---	---	---	---	---	---			
54: Disage-----	0-4	20-25	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	4-9	35-40	1.25-1.40	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32			
	9-18	35-55	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	18-22	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	In/hr	In/in	Pct	Pct						
55: Disage-----	0-4	20-25	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	1	7	38	
	4-9	35-40	1.25-1.40	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32				
	9-18	35-55	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32				
	18-22	---	---	---	---	---	---	---	---				
Clenage-----	0-3	18-25	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	2	7	38	
	3-16	31-35	1.25-1.40	0.2-0.6	0.12-0.15	3.0-5.9	0.0-1.0	.15	.32				
	16-25	41-55	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32				
	25-29	---	---	---	---	---	---	---	---				
56: Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	0.5-1.0	.20	.43	2	6	48	
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43				
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49				
	38-42	---	---	---	---	---	---	---	---				
57: Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.10	.43	2	7	38	
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43				
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49				
	38-42	---	---	---	---	---	---	---	---				
58: Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.10	.49	2	7	38	
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43				
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49				
	38-42	---	---	---	---	---	---	---	---				
Disage-----	0-4	20-25	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	1	7	38	
	4-9	35-40	1.25-1.40	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32				
	9-18	35-55	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32				
	18-22	---	---	---	---	---	---	---	---				
Kiona-----	0-4	7-15	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.15	.49	5	6	48	
	4-21	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.20	.55				
	21-60	7-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.55				
59: Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.10	.43	2	7	38	
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43				
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49				
	38-42	---	---	---	---	---	---	---	---				
Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0	
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0	
60: Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.10	.43	2	7	38	
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43				
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49				
	38-42	---	---	---	---	---	---	---	---				
Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0	
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
61:												
Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	0.5-1.0	.20	.43	2	6	48
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43			
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49			
	38-42	---	---	---	---	---	---	---	---			
Sohappy-----	0-4	5-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64	3	5	56
	4-17	10-15	1.15-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	17-41	15-25	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.32	.49			
	41-47	15-28	1.25-1.40	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.05	.43			
	47-51	---	---	---	---	---	---	---	---			
Fortyday-----	0-4	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.17	.37	1	5	56
	4-9	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37			
	9-17	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37			
	17-21	---	---	---	---	---	---	---	---			
62:												
Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	0.5-1.0	.20	.43	2	6	48
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43			
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49			
	38-42	---	---	---	---	---	---	---	---			
Sohappy-----	0-4	5-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64	3	5	56
	4-17	10-15	1.15-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	17-41	15-25	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.32	.49			
	41-47	15-28	1.25-1.40	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.05	.43			
	47-51	---	---	---	---	---	---	---	---			
Fortyday-----	0-4	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.17	.37	1	5	56
	4-9	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37			
	9-17	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37			
	17-21	---	---	---	---	---	---	---	---			
63:												
Drysel-----	0-11	15-18	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49	2	5	56
	11-27	25-34	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
	27-31	25-35	1.30-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.0-0.5	.17	.32			
	31-41	---	---	---	---	---	---	---	---			
	41-60	---	---	---	---	---	---	---	---			
64:												
Drysel-----	0-11	15-18	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49	2	5	56
	11-27	25-34	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
	27-31	25-35	1.30-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.0-0.5	.17	.32			
	31-41	---	---	---	---	---	---	---	---			
	41-60	---	---	---	---	---	---	---	---			
65:												
Durtash-----	0-7	20-27	1.15-1.35	0.6-2	0.17-0.19	0.0-2.9	1.0-2.0	.37	.37	1	6	48
	7-14	32-40	1.25-1.45	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.17	.32			
	14-19	40-60	1.25-1.45	0.06-0.2	0.08-0.11	3.0-5.9	0.5-2.0	.17	.32			
	19-29	---	---	---	---	---	---	---	---			
	29-60	---	---	---	---	---	---	---	---			
66:												
Esquatzel-----	0-10	2-6	1.10-1.30	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	10-40	5-15	1.20-1.40	0.6-2	0.19-0.23	0.0-2.9	0.0-1.0	.55	.55			
	40-60	5-15	1.25-1.55	0.6-2	0.18-0.23	0.0-2.9	0.0-1.0	.55	.55			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
67: Esquatzel-----	0-10	2-6	1.10-1.30	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	10-40	5-15	1.20-1.40	0.6-2	0.19-0.23	0.0-2.9	0.0-1.0	.55	.55			
	40-60	5-15	1.25-1.55	0.6-2	0.18-0.23	0.0-2.9	0.0-1.0	.55	.55			
68: Esquatzel-----	0-10	2-6	1.10-1.30	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	10-44	5-15	1.20-1.40	0.6-2	0.19-0.23	0.0-2.9	0.0-1.0	.55	.55			
	44-60	5-15	1.25-1.55	0.6-2	0.18-0.23	0.0-2.9	0.0-1.0	.55	.55			
Aquolls-----	0-6	5-15	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.17	.37	2	4	86
	6-10	5-15	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.15	.37			
	10-20	5-15	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37			
	20-60	0-5	1.40-1.65	20-100	0.02-0.05	0.0-2.9	0.0-1.0	.05	.20			
Weirman-----	0-12	5-8	1.20-1.40	6-20	0.07-0.10	0.0-2.9	1.0-2.0	.10	.37	5	5	56
	12-18	2-5	1.50-1.70	20-100	0.04-0.07	0.0-2.9	1.0-2.0	.10	.24			
	18-60	0-2	1.50-1.70	20-100	0.01-0.02	0.0-2.9	0.0-0.5	.05	.24			
69: Esquatzel-----	0-10	2-6	1.10-1.30	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	10-40	5-15	1.20-1.40	0.6-2	0.19-0.23	0.0-2.9	0.0-1.0	.55	.55			
	40-60	5-15	1.25-1.55	0.6-2	0.18-0.23	0.0-2.9	0.0-1.0	.55	.55			
Weirman fine sandy loam-----	0-15	5-8	1.15-1.35	6-20	0.16-0.18	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	15-18	5-8	1.15-1.35	6-20	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37			
	18-27	2-5	1.35-1.55	6-20	0.07-0.10	0.0-2.9	0.5-2.0	.17	.24			
	27-60	0-2	1.50-1.70	20-100	0.01-0.02	0.0-2.9	0.0-0.5	.05	.24			
Weirman very cobbly sandy loam-----	0-10	5-8	1.20-1.40	6-20	0.07-0.10	0.0-2.9	1.0-2.0	.10	.37	5	5	56
	10-18	2-5	1.50-1.70	20-100	0.04-0.07	0.0-2.9	1.0-2.0	.10	.24			
	18-60	0-2	1.50-1.70	20-100	0.01-0.02	0.0-2.9	0.0-0.5	.05	.24			
70: Finley sandy loam----	0-4	15-20	1.20-1.45	2-6	0.10-0.13	0.0-2.9	0.5-1.0	.37	.37	5	3	86
	4-13	15-20	1.20-1.45	2-6	0.09-0.13	0.0-2.9	0.0-1.0	.20	.37			
	13-22	10-15	1.30-1.50	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.10	.37			
	22-38	10-15	1.30-1.50	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.10	.37			
	38-60	0-4	1.45-1.60	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.24			
Finley cobbly sandy loam-----	0-8	15-20	1.20-1.45	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.20	.37	5	4	86
	8-20	10-15	1.30-1.50	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.10	.37			
	20-29	10-15	1.30-1.50	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.10	.37			
	29-60	0-4	1.45-1.60	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.24			
71: Fortyday-----	0-3	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37	1	8	0
	3-6	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37			
	6-15	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37			
	15-19	---	---	---	---	---	---	---	---			
Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.10	.43	2	7	38
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43			
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49			
	38-42	---	---	---	---	---	---	---	---			
Nevo-----	0-2	5-8	1.25-1.35	2-6	0.06-0.14	0.0-2.9	0.5-1.0	.15	.32	1	8	0
	2-8	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37			
	8-12	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	In/hr	In/in	Pct	Pct						
72: Fortyday-----	0-3	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37	1	8	0	
	3-6	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37				
	6-15	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37				
	15-19	---	---	---	---	---	---	---	---				
Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.10	.43	2	7	38	
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43				
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49				
	38-42	---	---	---	---	---	---	---	---				
Nevo-----	0-2	5-8	1.25-1.35	2-6	0.06-0.14	0.0-2.9	0.5-1.0	.15	.32	1	8	0	
	2-8	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37				
	8-12	---	---	---	---	---	---	---	---				
73: Fortyday-----	0-3	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37	1	8	0	
	3-6	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37				
	6-15	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37				
	15-19	---	---	---	---	---	---	---	---				
Drino-----	0-3	10-18	1.15-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.10	.43	2	7	38	
	3-19	15-27	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43				
	19-38	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.0-0.5	.10	.49				
	38-42	---	---	---	---	---	---	---	---				
Sohappy-----	0-4	5-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64	3	5	56	
	4-17	10-15	1.15-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55				
	17-41	15-25	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.32	.49				
	41-47	15-28	1.25-1.40	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.05	.43				
	47-51	---	---	---	---	---	---	---	---				
74: Fortyday-----	0-3	10-18	1.25-1.40	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32	1	4	86	
	3-10	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37				
	10-13	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37				
	13-17	---	---	---	---	---	---	---	---				
Nevo-----	0-2	5-8	1.25-1.40	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32	1	4	86	
	2-8	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37				
	8-12	---	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0	
75: Fortyday-----	0-3	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37	1	8	0	
	3-6	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37				
	6-15	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37				
	15-19	---	---	---	---	---	---	---	---				
Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0	
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	In/hr	In/in	Pct	Pct						
76:													
Frint-----	0-12	18-25	1.10-1.20	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.28	.49	2	3	86	
	12-20	18-25	1.25-1.45	0.6-2	0.08-0.14	0.0-2.9	1.0-3.0	.15	.49				
	20-28	18-25	1.25-1.45	0.6-2	0.06-0.14	0.0-2.9	1.0-2.0	.10	.55				
	28-32	---	---	---	---	---	---	---	---				
Gidwin-----	0-3	18-24	1.30-1.40	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.24	.49	1	6	48	
	3-7	18-24	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.43				
	7-17	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.5-2.0	.10	.43				
	17-21	---	---	---	---	---	---	---	---				
Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0	
77:													
Frint-----	0-12	18-25	1.10-1.20	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.28	.49	2	3	86	
	12-20	18-25	1.25-1.45	0.6-2	0.08-0.14	0.0-2.9	1.0-3.0	.15	.49				
	20-28	18-25	1.25-1.45	0.6-2	0.06-0.14	0.0-2.9	1.0-2.0	.10	.55				
	28-32	---	---	---	---	---	---	---	---				
Hogranch-----	0-8	15-20	1.10-1.20	0.6-2	0.17-0.19	0.0-2.9	2.0-4.0	.32	.37	3	2	134	
	8-21	15-20	1.15-1.30	0.6-2	0.08-0.14	0.0-2.9	1.0-3.0	.10	.37				
	21-46	15-20	1.30-1.40	0.6-2	0.08-0.14	0.0-2.9	0.5-2.0	.10	.37				
	46-50	---	---	---	---	---	---	---	---				
78:													
Frint-----	0-12	18-25	1.10-1.20	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.28	.49	2	3	86	
	12-20	18-25	1.25-1.45	0.6-2	0.08-0.14	0.0-2.9	1.0-3.0	.15	.49				
	20-28	18-25	1.25-1.45	0.6-2	0.06-0.14	0.0-2.9	1.0-2.0	.10	.55				
	28-32	---	---	---	---	---	---	---	---				
Hogranch-----	0-8	15-20	1.10-1.20	0.6-2	0.17-0.19	0.0-2.9	2.0-4.0	.32	.37	3	2	134	
	8-21	15-20	1.15-1.30	0.6-2	0.08-0.14	0.0-2.9	1.0-3.0	.10	.37				
	21-46	15-20	1.30-1.40	0.6-2	0.08-0.14	0.0-2.9	0.5-2.0	.10	.37				
	46-50	---	---	---	---	---	---	---	---				
Gidwin-----	0-3	18-24	1.30-1.40	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.24	.49	1	6	48	
	3-7	18-24	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.43				
	7-17	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.5-2.0	.10	.43				
	17-21	---	---	---	---	---	---	---	---				
79:													
Gorskel silt loam----	0-5	15-18	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	1	5	56	
	5-10	20-27	1.25-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.20	.49				
	10-16	20-35	1.25-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.15	.43				
	16-26	---	---	---	---	---	---	---	---				
	26-60	---	---	---	---	---	---	---	---				
Gorskel cobbly loam---	0-5	15-18	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-2.0	.20	.49	1	6	48	
	5-9	20-27	1.25-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.20	.49				
	9-14	20-35	1.25-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.15	.43				
	14-24	---	---	---	---	---	---	---	---				
	24-60	---	---	---	---	---	---	---	---				
80:													
Gorst-----	0-6	16-22	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	1	5	56	
	6-14	18-25	1.30-1.50	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.55	.55				
	14-24	---	---	---	---	---	---	---	---				
	24-60	---	---	---	---	---	---	---	---				

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
81: Grinrod-----	0-4	15-20	1.15-1.35	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	2	7	38
	4-11	15-20	1.15-1.35	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37			
	11-25	24-35	1.30-1.50	0.2-0.6	0.05-0.12	0.0-2.9	0.5-2.0	.05	.37			
	25-29	---	---	---	---	---	---	---	---			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
82: Grinrod-----	0-4	15-20	1.15-1.35	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	2	7	38
	4-11	15-20	1.15-1.35	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37			
	11-25	24-35	1.30-1.50	0.2-0.6	0.05-0.12	0.0-2.9	0.5-2.0	.05	.37			
	25-29	---	---	---	---	---	---	---	---			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
83: Haploxerolls-----	0-14	5-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	5	4L	86
	14-60	5-15	1.25-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.55	.55			
Orthents-----	0-6	0-5	1.50-1.70	20-100	0.04-0.07	0.0-2.9	0.0-1.0	.10	.24	5	3	86
	6-60	0-2	1.50-1.70	20-100	0.01-0.03	0.0-2.9	0.0-0.5	.05	.28			
Aquolls-----	0-6	5-15	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.17	.37	2	4	86
	6-10	5-15	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.15	.37			
	10-20	5-15	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37			
	20-60	0-5	1.40-1.65	---	0.02-0.05	0.0-2.9	0.0-1.0	.05	.20			
84: Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
85: Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
86: Kiona-----	0-4	7-15	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.15	.49	5	7	38
	4-21	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.20	.55			
	21-60	7-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.55			
87: Kiona-----	0-4	7-15	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.15	.49	5	7	38
	4-21	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.20	.55			
	21-60	7-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.55			
Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
88: Lainand-----	0-4	18-25	1.15-1.30	0.6-2	0.17-0.19	0.0-2.9	2.0-3.0	.28	.37	5	3	86
	4-22	18-25	1.20-1.45	0.2-0.6	0.08-0.11	3.0-5.9	1.0-3.0	.10	.37			
	22-43	25-35	1.30-1.40	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.10	.37			
	43-47	---	---	---	---	---	---	---	---			
Tanksel-----	0-4	23-27	1.15-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-3.0	.32	.37	2	2	134
	4-12	23-27	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.37			
	12-22	30-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.32			
	22-34	35-50	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.10	.32			
	34-38	---	---	---	---	---	---	---	---			
89: Laric-----	0-3	10-18	1.25-1.35	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	3-8	23-30	1.30-1.40	0.2-0.6	0.13-0.17	0.0-2.9	1.0-2.0	.20	.43			
	8-12	---	---	---	---	---	---	---	---			
90: Laric-----	0-3	10-18	1.25-1.35	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	3-8	23-30	1.30-1.40	0.2-0.6	0.13-0.17	0.0-2.9	1.0-2.0	.20	.43			
	8-12	---	---	---	---	---	---	---	---			
Zen-----	0-12	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	12-18	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	18-25	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	25-29	---	---	---	---	---	---	---	---			
91: Levnik-----	0-4	17-24	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	4-8	30-40	1.25-1.40	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.24	.32			
	8-13	35-45	1.25-1.40	0.06-0.2	0.14-0.17	3.0-5.9	0.0-1.0	.20	.32			
	13-16	40-50	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	16-20	---	---	---	---	---	---	---	---			
Nosser-----	0-3	17-23	1.15-1.35	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.17	.37	2	6	48
	3-10	28-33	1.25-1.40	0.2-0.6	0.16-0.18	3.0-5.9	0.0-1.0	.24	.32			
	10-18	28-33	1.25-1.40	0.2-0.6	0.15-0.17	3.0-5.9	0.0-1.0	.20	.32			
	18-22	28-38	1.25-1.40	0.2-0.6	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	22-26	---	---	---	---	---	---	---	---			
Nevo-----	0-2	5-8	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	2-9	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37			
	9-13	---	---	---	---	---	---	---	---			
92: Malaga-----	0-4	5-15	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37	2	4	86
	4-9	5-15	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37			
	9-15	5-15	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	15-60	0-5	1.40-1.65	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
93: Malaga-----	0-4	5-15	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37	2	4	86
	4-9	5-15	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37			
	9-15	5-15	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	15-60	0-5	1.40-1.65	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
94: Manastash-----	0-4	18-27	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	2	6	48
	4-10	18-30	1.15-1.45	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37			
	10-16	35-60	1.15-1.35	0.06-0.2	0.10-0.17	3.0-5.9	0.5-2.0	.20	.24			
	16-25	35-60	1.15-1.35	0.06-0.2	0.11-0.17	3.0-5.9	0.5-1.0	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
	35-60	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
95: Manastash-----	0-4	18-27	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	2	6	48
	4-10	18-30	1.15-1.45	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37			
	10-16	35-60	1.15-1.35	0.06-0.2	0.10-0.17	3.0-5.9	0.5-2.0	.20	.24			
	16-25	35-60	1.15-1.35	0.06-0.2	0.11-0.17	3.0-5.9	0.5-1.0	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
	35-60	---	---	---	---	---	---	---	---			
96: Manastash-----	0-4	18-27	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	2	6	48
	4-10	18-30	1.15-1.45	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37			
	10-16	35-60	1.15-1.35	0.06-0.2	0.10-0.17	3.0-5.9	0.5-2.0	.20	.24			
	16-25	35-60	1.15-1.35	0.06-0.2	0.11-0.17	3.0-5.9	0.5-1.0	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
	35-60	---	---	---	---	---	---	---	---			
Durtash-----	0-4	15-25	1.15-1.30	0.6-2	0.17-0.19	0.0-2.9	1.0-2.0	.20	.37	1	6	48
	4-15	35-60	1.25-1.45	0.06-0.2	0.08-0.11	3.0-5.9	0.0-2.0	.17	.32			
	15-25	---	---	---	---	---	---	---	---			
	25-60	---	---	---	---	---	---	---	---			
97: Manastash-----	0-4	18-27	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	2	6	48
	4-10	18-30	1.15-1.45	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37			
	10-16	35-60	1.15-1.35	0.06-0.2	0.10-0.17	3.0-5.9	0.5-2.0	.20	.24			
	16-25	35-60	1.15-1.35	0.06-0.2	0.11-0.17	3.0-5.9	0.5-1.0	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
	35-60	---	---	---	---	---	---	---	---			
Durtash-----	0-4	15-25	1.15-1.30	0.6-2	0.17-0.19	0.0-2.9	1.0-2.0	.20	.37	1	6	48
	4-15	35-60	1.25-1.45	0.06-0.2	0.08-0.11	3.0-5.9	0.0-2.0	.17	.32			
	15-25	---	---	---	---	---	---	---	---			
	25-60	---	---	---	---	---	---	---	---			
98: Manastash-----	0-4	18-27	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	2	6	48
	4-10	18-30	1.15-1.45	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37			
	10-20	35-60	1.15-1.35	0.06-0.2	0.10-0.17	3.0-5.9	0.5-2.0	.20	.24			
	20-25	35-60	1.15-1.35	0.06-0.2	0.11-0.17	3.0-5.9	0.5-1.0	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
	35-60	---	---	---	---	---	---	---	---			
Meloza-----	0-3	27-30	1.10-1.30	0.2-0.6	0.19-0.20	3.0-5.9	1.0-2.0	.32	.32	5	4	86
	3-21	35-60	1.15-1.40	0.06-0.2	0.15-0.17	6.0-8.9	0.5-2.0	.28	.28			
	21-60	35-60	1.15-1.40	0.06-0.2	0.14-0.17	6.0-8.9	0.0-0.5	.28	.28			
Durtash-----	0-4	15-25	1.15-1.30	0.6-2	0.17-0.19	0.0-2.9	1.0-2.0	.20	.37	1	6	48
	4-15	35-60	1.25-1.45	0.06-0.2	0.08-0.11	3.0-5.9	0.0-2.0	.17	.32			
	15-25	---	---	---	---	---	---	---	---			
	25-60	---	---	---	---	---	---	---	---			
99: Manastash-----	0-4	18-27	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	2	6	48
	4-10	18-30	1.15-1.45	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37			
	10-16	35-60	1.15-1.35	0.06-0.2	0.10-0.17	3.0-5.9	0.5-2.0	.20	.24			
	16-25	35-60	1.15-1.35	0.06-0.2	0.11-0.17	3.0-5.9	0.5-1.0	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
	35-60	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
99:												
Selah-----	0-10	15-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	10-14	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	14-20	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	20-27	27-35	1.20-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.17	.28			
	27-37	---	---	---	---	---	---	---	---			
	37-60	---	---	---	---	---	---	---	---			
Gorst-----	0-6	16-22	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	1	5	56
	6-14	18-25	1.30-1.50	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.55	.55			
	14-24	---	---	---	---	---	---	---	---			
	24-60	---	---	---	---	---	---	---	---			
100:												
Marlic-----	0-6	17-23	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.32	.37	1	5	56
	6-12	28-33	1.25-1.40	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.24	.32			
	12-15	35-40	1.25-1.40	0.2-0.6	0.15-0.17	3.0-5.9	0.5-1.0	.20	.32			
	15-19	---	---	---	---	---	---	---	---			
Zen-----	0-12	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	12-18	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	18-25	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	25-29	---	---	---	---	---	---	---	---			
Laric-----	0-3	10-18	1.25-1.35	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	3-9	23-30	1.30-1.40	0.2-0.6	0.13-0.17	0.0-2.9	1.0-2.0	.20	.43			
	9-13	---	---	---	---	---	---	---	---			
101:												
Meloza-----	0-3	27-30	1.10-1.30	0.2-0.6	0.19-0.20	3.0-5.9	1.0-2.0	.32	.32	5	4	86
	3-21	35-60	1.15-1.40	0.06-0.2	0.15-0.17	6.0-8.9	0.5-2.0	.28	.28			
	21-60	35-60	1.15-1.40	0.06-0.2	0.14-0.17	6.0-8.9	0.0-0.5	.28	.28			
Roza-----	0-3	40-60	1.15-1.35	0.06-0.2	0.14-0.16	6.0-8.9	0.5-1.0	.28	.32	5	4	86
	3-18	35-60	1.15-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.24	.28			
	18-60	35-60	1.15-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.28	.32			
102:												
Meloza-----	0-3	27-30	1.10-1.30	0.2-0.6	0.19-0.20	3.0-5.9	1.0-2.0	.32	.32	5	4	86
	3-21	35-60	1.15-1.40	0.06-0.2	0.15-0.17	6.0-8.9	0.5-2.0	.28	.28			
	21-60	35-60	1.15-1.40	0.06-0.2	0.14-0.17	6.0-8.9	0.0-0.5	.28	.28			
Roza-----	0-3	40-60	1.15-1.35	0.06-0.2	0.14-0.16	6.0-8.9	0.5-1.0	.28	.32	5	4	86
	3-18	35-60	1.15-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.24	.28			
	18-60	35-60	1.15-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.28	.32			
103:												
Meloza-----	0-3	27-30	1.10-1.30	0.2-0.6	0.19-0.20	3.0-5.9	1.0-2.0	.32	.32	5	4	86
	3-21	35-60	1.15-1.40	0.06-0.2	0.15-0.17	6.0-8.9	0.5-2.0	.28	.28			
	21-60	35-60	1.15-1.40	0.06-0.2	0.14-0.17	6.0-8.9	0.0-0.5	.28	.28			
Roza-----	0-3	40-60	1.15-1.35	0.06-0.2	0.14-0.16	6.0-8.9	0.5-1.0	.28	.32	5	4	86
	3-18	35-60	1.15-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.24	.28			
	18-60	35-60	1.15-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.28	.32			
104:												
Nack-----	0-6	18-25	1.15-1.35	0.6-2	0.11-0.15	0.0-2.9	1.0-3.0	.20	.37	3	5	56
	6-15	25-35	1.30-1.50	0.2-0.6	0.11-0.16	3.0-5.9	1.0-3.0	.20	.37			
	15-60	25-35	1.30-1.50	0.2-0.6	0.04-0.08	3.0-5.9	1.0-2.0	.05	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
104: Opnish-----	0-8	20-27	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-4.0	.37	.37	4	6	48
	8-13	27-33	1.15-1.35	0.2-0.6	0.17-0.20	3.0-5.9	1.0-3.0	.28	.28			
	13-26	35-40	1.25-1.40	0.06-0.2	0.17-0.20	3.0-5.9	1.0-3.0	.28	.28			
	26-60	35-45	1.25-1.40	0.06-0.2	0.15-0.20	3.0-5.9	1.0-3.0	.24	.28			
105: Neppel-----	0-3	5-12	1.20-1.35	0.6-2	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49	3	5	56
	3-21	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.37	.43			
	21-25	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	25-60	1-6	1.45-1.60	20-100	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
Scoon-----	0-3	10-18	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.55	1	5	56
	3-14	10-18	1.15-1.45	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.43	.55			
	14-17	10-18	1.30-1.50	0.6-2	0.13-0.17	0.0-2.9	0.0-0.5	.37	.55			
	17-27	---	---	---	---	---	---	---	---			
	27-60	---	---	---	---	---	---	---	---			
106: Nevo-----	0-2	5-8	1.25-1.35	2-6	0.06-0.14	0.0-2.9	0.5-1.0	.15	.32	1	8	0
	2-7	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37			
	7-11	---	---	---	---	---	---	---	---			
107: Nevo-----	0-2	5-8	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	2-8	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37			
	8-12	---	---	---	---	---	---	---	---			
Fortyday-----	0-4	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.17	.37	1	5	56
	4-9	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37			
	9-17	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37			
	17-21	---	---	---	---	---	---	---	---			
108: Nevo very cobbly loam	0-2	5-8	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	2-8	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37			
	8-12	---	---	---	---	---	---	---	---			
Nevo extremely gravelly sandy loam--	0-2	10-18	1.25-1.35	2-6	0.06-0.14	0.0-2.9	0.5-1.0	.15	.32	1	8	0
	2-8	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37			
	8-12	---	---	---	---	---	---	---	---			
109: Nevo very cobbly loam	0-2	5-8	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	2-8	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37			
	8-12	---	---	---	---	---	---	---	---			
Nevo extremely gravelly sandy loam--	0-2	5-8	1.25-1.35	2-6	0.06-0.14	0.0-2.9	0.5-1.0	.15	.32	1	8	0
	2-8	25-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.0-1.0	.20	.37			
	8-12	---	---	---	---	---	---	---	---			
110: Niben-----	0-4	17-24	1.15-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-3.0	.28	.37	5	5	56
	4-18	29-32	1.25-1.40	0.2-0.6	0.15-0.19	3.0-5.9	1.0-3.0	.32	.37			
	18-51	33-45	1.25-1.40	0.06-0.2	0.15-0.19	3.0-5.9	1.0-2.0	.28	.32			
	51-60	33-45	1.25-1.40	0.06-0.2	0.13-0.19	3.0-5.9	1.0-2.0	.24	.32			
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-7	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	7-16	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	16-20	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
110: Benwy-----	0-4	10-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	4-34	10-15	1.20-1.30	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.55			
	34-45	18-28	1.25-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.55			
	45-60	18-28	1.25-1.40	0.6-2	0.14-0.19	0.0-2.9	0.0-1.0	.32	.43			
111: Norod-----	0-10	10-18	1.15-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.37	2	4	86
	10-28	23-33	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	1.0-2.0	.10	.43			
	28-33	23-33	1.30-1.40	0.2-0.6	0.07-0.13	0.0-2.9	0.5-2.0	.05	.43			
	33-37	---	---	---	---	---	---	---	---			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
112: Norod-----	0-10	10-18	1.15-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.37	2	4	86
	10-28	23-33	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	1.0-2.0	.10	.43			
	28-33	23-33	1.30-1.40	0.2-0.6	0.07-0.13	0.0-2.9	0.5-2.0	.05	.43			
	33-37	---	---	---	---	---	---	---	---			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
113: Norod-----	0-10	10-18	1.15-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.37	2	4	86
	10-28	23-33	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	1.0-2.0	.10	.43			
	28-33	23-33	1.30-1.40	0.2-0.6	0.07-0.13	0.0-2.9	0.5-2.0	.05	.43			
	33-37	---	---	---	---	---	---	---	---			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
114: Norod-----	0-10	10-18	1.15-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.37	2	4	86
	10-28	23-33	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	1.0-2.0	.10	.43			
	28-33	23-33	1.30-1.40	0.2-0.6	0.07-0.13	0.0-2.9	0.5-2.0	.05	.43			
	33-37	---	---	---	---	---	---	---	---			
Ralock-----	0-4	6-10	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	4	86
	4-14	6-10	1.15-1.30	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.49	.55			
	14-27	18-35	1.35-1.55	0.2-0.6	0.12-0.14	3.0-5.9	1.0-2.0	.20	.55			
	27-49	25-35	1.35-1.55	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.55			
	49-60	25-40	1.35-1.55	0.2-0.6	0.09-0.12	3.0-5.9	0.0-0.5	.15	.55			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
115: Norod-----	0-10	10-18	1.15-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.37	2	4	86
	10-28	23-33	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	1.0-2.0	.10	.43			
	28-33	23-33	1.30-1.40	0.2-0.6	0.07-0.13	0.0-2.9	0.5-2.0	.05	.43			
	33-37	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
115:												
Ralock-----	0-4	6-10	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	4	86
	4-14	6-10	1.15-1.30	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.49	.55			
	14-27	18-35	1.35-1.55	0.2-0.6	0.12-0.14	3.0-5.9	1.0-2.0	.20	.55			
	27-49	25-35	1.35-1.55	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.55			
	49-60	25-40	1.35-1.55	0.2-0.6	0.09-0.12	3.0-5.9	0.0-0.5	.15	.55			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
116:												
Norod-----	0-10	10-18	1.15-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.37	2	4	86
	10-28	23-33	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	1.0-2.0	.10	.43			
	28-33	23-33	1.30-1.40	0.2-0.6	0.07-0.13	0.0-2.9	0.5-2.0	.05	.43			
	33-37	---	---	---	---	---	---	---	---			
Ralock-----	0-4	6-10	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	4	86
	4-14	6-10	1.15-1.30	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.49	.55			
	14-27	18-35	1.35-1.55	0.2-0.6	0.12-0.14	3.0-5.9	1.0-2.0	.20	.55			
	27-49	25-35	1.35-1.55	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.55			
	49-60	25-40	1.35-1.55	0.2-0.6	0.09-0.12	3.0-5.9	0.0-0.5	.15	.55			
Horseflat-----	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	4-9	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	9-16	23-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-20	---	---	---	---	---	---	---	---			
117:												
Norod-----	0-10	10-18	1.15-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.37	2	4	86
	10-28	23-33	1.30-1.40	0.2-0.6	0.10-0.12	0.0-2.9	1.0-2.0	.10	.43			
	28-33	23-33	1.30-1.40	0.2-0.6	0.07-0.13	0.0-2.9	0.5-2.0	.05	.43			
	33-37	---	---	---	---	---	---	---	---			
Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0
118:												
Nosser-----	0-3	17-23	1.15-1.35	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.17	.37	2	6	48
	3-10	28-33	1.25-1.40	0.2-0.6	0.16-0.18	3.0-5.9	0.0-1.0	.24	.32			
	10-18	28-33	1.25-1.40	0.2-0.6	0.15-0.17	3.0-5.9	0.0-1.0	.20	.32			
	18-22	28-38	1.25-1.40	0.2-0.6	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	22-26	---	---	---	---	---	---	---	---			
Levnik-----	0-4	17-24	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	4-8	30-40	1.25-1.40	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.24	.32			
	8-13	35-45	1.25-1.40	0.06-0.2	0.14-0.17	3.0-5.9	0.0-1.0	.20	.32			
	13-16	40-50	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	16-20	---	---	---	---	---	---	---	---			
119:												
Nosser-----	0-3	17-23	1.15-1.35	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.17	.37	2	6	48
	3-10	28-33	1.25-1.40	0.2-0.6	0.16-0.18	3.0-5.9	0.0-1.0	.24	.32			
	10-18	28-33	1.25-1.40	0.2-0.6	0.15-0.17	3.0-5.9	0.0-1.0	.20	.32			
	18-22	28-38	1.25-1.40	0.2-0.6	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	22-26	---	---	---	---	---	---	---	---			
Levnik-----	0-4	17-24	1.15-1.35	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.15	.37	1	7	38
	4-8	30-40	1.25-1.40	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.24	.32			
	8-13	35-45	1.25-1.40	0.06-0.2	0.14-0.17	3.0-5.9	0.0-1.0	.20	.32			
	13-16	40-50	1.25-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.0-0.5	.05	.32			
	16-20	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
120: Palerf-----	0-9	20-27	1.15-1.30	0.6-2	0.11-0.14	3.0-5.9	1.0-3.0	.20	.43	2	3	86
	9-27	35-45	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.10	.37			
	27-35	35-60	1.20-1.30	0.06-0.2	0.04-0.13	3.0-5.9	0.5-2.0	.05	.37			
	35-39	---	---	---	---	---	---	---	---			
Ralock-----	0-4	6-10	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	2	134
	4-14	6-10	1.15-1.30	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.49	.55			
	14-27	18-35	1.35-1.55	0.2-0.6	0.12-0.14	3.0-5.9	1.0-2.0	.20	.55			
	27-49	25-35	1.35-1.55	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.55			
	49-60	25-40	1.35-1.55	0.2-0.6	0.09-0.12	3.0-5.9	0.0-0.5	.15	.55			
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
121: Palerf-----	0-9	20-27	1.15-1.30	0.6-2	0.11-0.14	3.0-5.9	1.0-3.0	.20	.43	2	3	86
	9-27	35-45	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.10	.37			
	27-35	35-60	1.20-1.30	0.06-0.2	0.04-0.13	3.0-5.9	0.5-2.0	.05	.37			
	35-39	---	---	---	---	---	---	---	---			
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
122: Palexerolls-----	0-5	27-32	1.10-1.30	0.2-0.6	0.13-0.17	3.0-5.9	2.0-3.0	.24	.37	2	7	38
	5-21	40-60	1.25-1.40	0.06-0.2	0.10-0.16	6.0-8.9	1.0-3.0	.20	.32			
	21-35	35-60	1.25-1.40	0.06-0.2	0.09-0.16	6.0-8.9	0.0-2.0	.10	.32			
	35-39	---	---	---	---	---	---	---	---			
Patron-----	0-15	15-20	1.15-1.30	0.6-2	0.14-0.20	0.0-2.9	2.0-3.0	.28	.43	3	2	134
	15-20	35-40	1.25-1.40	0.2-0.6	0.14-0.18	3.0-5.9	1.0-2.0	.24	.37			
	20-44	35-50	1.25-1.40	0.06-0.2	0.14-0.18	6.0-8.9	0.5-2.0	.24	.32			
	44-52	35-50	1.25-1.40	0.06-0.2	0.10-0.16	3.0-5.9	0.0-1.0	.10	.32			
	52-56	---	---	---	---	---	---	---	---			
123: Patron-----	0-15	15-20	1.15-1.30	0.6-2	0.15-0.19	0.0-2.9	1.0-4.0	.32	.37	5	2	134
	15-26	30-35	1.25-1.40	0.2-0.6	0.14-0.19	3.0-5.9	1.0-2.0	.24	.32			
	26-30	35-55	1.15-1.35	0.06-0.2	0.13-0.18	3.0-5.9	0.5-2.0	.24	.32			
	30-60	35-50	1.15-1.35	0.06-0.2	0.12-0.16	3.0-5.9	0.5-2.0	.20	.32			
Camaspach-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
124: Prosser-----	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	5	56
	4-20	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	20-26	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	26-30	---	---	---	---	---	---	---	---			
125: Prosser-----	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	5	56
	4-20	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	20-26	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	26-30	---	---	---	---	---	---	---	---			



Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	In/hr	In/in	Pct	Pct						
132: Rollinger-----	0-11	15-18	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	5	4	86	
	11-27	27-33	1.25-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32				
	27-48	18-33	1.25-1.45	0.2-2	0.15-0.20	0.0-2.9	0.5-2.0	.43	.49				
	48-60	15-27	1.25-1.45	0.6-2	0.15-0.20	0.0-2.9	0.5-1.0	.43	.49				
133: Rollinger-----	0-11	15-18	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	5	4	86	
	11-27	27-33	1.25-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32				
	27-48	18-33	1.25-1.45	0.2-2	0.15-0.20	0.0-2.9	0.5-2.0	.43	.49				
	48-60	15-27	1.25-1.45	0.6-2	0.15-0.20	0.0-2.9	0.5-1.0	.43	.49				
134: Rollinger-----	0-11	15-18	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	5	4	86	
	11-27	27-33	1.25-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32				
	27-48	18-33	1.25-1.45	0.2-2	0.15-0.20	0.0-2.9	0.5-2.0	.43	.49				
	48-60	15-27	1.25-1.45	0.6-2	0.15-0.20	0.0-2.9	0.5-1.0	.43	.49				
135: Rollinger-----	0-12	15-18	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	5	4	86	
	12-28	27-33	1.25-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32				
	28-52	18-33	1.25-1.45	0.2-2	0.15-0.20	0.0-2.9	0.5-2.0	.43	.49				
	52-60	15-27	1.25-1.45	0.6-2	0.15-0.20	0.0-2.9	0.5-1.0	.43	.49				
136: Rollinger-----	0-18	15-18	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	5	4	86	
	18-29	27-33	1.25-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32				
	29-60	18-33	1.25-1.45	0.2-2	0.15-0.20	0.0-2.9	0.5-2.0	.43	.49				
137: Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0	
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0	
138: Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0	
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0	
Kiona-----	0-4	7-15	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.15	.49	5	7	38	
	4-21	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.20	.55				
	21-60	7-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.55				
139: Sagehill-----	0-4	5-10	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.55	.55	5	3	86	
	4-35	5-10	1.30-1.45	0.6-2	0.15-0.17	0.0-2.9	0.0-1.0	.55	.55				
	35-50	5-10	1.35-1.50	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55				
	50-60	2-8	1.35-1.50	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.43	.55				
Burbank-----	0-5	0-5	1.40-1.60	6-20	0.04-0.07	0.0-2.9	0.5-1.0	.10	.24	5	3	86	
	5-17	0-5	1.40-1.60	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24				
	17-60	0-2	1.50-1.65	20-100	0.01-0.03	0.0-2.9	0.0-0.5	.05	.20				
Malaga-----	0-4	5-15	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37	2	4	86	
	4-14	5-15	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37				
	14-22	5-15	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37				
	22-60	0-5	1.40-1.65	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20				

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
140: Scoon-----	0-3	10-18	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.55	1	5	56
	3-14	10-18	1.15-1.45	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.43	.55			
	14-17	10-18	1.30-1.50	0.6-2	0.13-0.17	0.0-2.9	0.0-0.5	.37	.55			
	17-27	---	---	---	---	---	---	---	---			
	27-60	---	---	---	---	---	---	---	---			
141: Selah-----	0-10	15-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	10-14	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	14-20	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	20-27	27-35	1.20-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.17	.28			
	27-37	---	---	---	---	---	---	---	---			
	37-60	---	---	---	---	---	---	---	---			
142: Selah-----	0-10	15-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	10-14	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	14-20	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	20-27	27-35	1.20-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.17	.28			
	27-37	---	---	---	---	---	---	---	---			
	37-60	---	---	---	---	---	---	---	---			
143: Selah-----	0-10	15-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	10-14	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	14-20	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	20-27	27-35	1.20-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.17	.28			
	27-37	---	---	---	---	---	---	---	---			
	37-60	---	---	---	---	---	---	---	---			
144: Selah-----	0-10	15-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	10-14	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	14-20	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	20-27	27-35	1.20-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.17	.28			
	27-37	---	---	---	---	---	---	---	---			
	37-60	---	---	---	---	---	---	---	---			
145: Selah-----	0-10	15-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	10-14	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	14-20	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	20-27	27-35	1.20-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.17	.28			
	27-37	---	---	---	---	---	---	---	---			
	37-60	---	---	---	---	---	---	---	---			
146: Sohappy-----	0-4	5-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64	3	5	56
	4-17	10-15	1.15-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	17-41	15-25	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.32	.49			
	41-47	15-28	1.25-1.40	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.05	.43			
	47-51	---	---	---	---	---	---	---	---			
Fortyday-----	0-4	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.17	.37	1	5	56
	4-9	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37			
	9-17	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37			
	17-21	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
147: Sohappy-----	0-4	5-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64	3	5	56
	4-17	10-15	1.15-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	17-41	15-25	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.32	.49			
	41-47	15-28	1.25-1.40	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.05	.43			
	47-51	---	---	---	---	---	---	---	---			
Fortyday-----	0-4	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.17	.37	1	5	56
	4-9	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37			
	9-17	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37			
	17-21	---	---	---	---	---	---	---	---			
148: Sohappy-----	0-4	5-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64	3	5	56
	4-17	10-15	1.15-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	17-41	15-25	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.32	.49			
	41-47	15-28	1.25-1.40	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.05	.43			
	47-51	---	---	---	---	---	---	---	---			
Fortyday-----	0-4	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.17	.37	1	5	56
	4-9	10-15	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.24	.37			
	9-17	18-27	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-0.5	.10	.37			
	17-21	---	---	---	---	---	---	---	---			
149: Starbuck-----	0-3	5-10	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.55	.55	1	3	86
	3-16	5-18	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	16-20	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0
150: Tankssel-----	0-4	23-27	1.15-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-3.0	.32	.37	2	4	86
	4-12	23-27	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.37			
	12-22	30-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.32			
	22-34	35-50	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.10	.32			
	34-38	---	---	---	---	---	---	---	---			
Patron-----	0-12	15-20	1.15-1.30	0.6-2	0.13-0.17	0.0-2.9	2.0-3.0	.24	.43	5	6	48
	12-35	30-35	1.20-1.35	0.2-0.6	0.12-0.16	6.0-8.9	1.0-2.0	.20	.37			
	35-60	35-50	1.30-1.50	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.10	.37			
Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
151: Tankssel-----	0-4	23-27	1.15-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-3.0	.32	.37	2	2	134
	4-12	23-27	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.37			
	12-22	30-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.32			
	22-34	35-50	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.10	.32			
	34-38	---	---	---	---	---	---	---	---			
Patron-----	0-12	15-20	1.15-1.30	0.6-2	0.13-0.17	0.0-2.9	2.0-3.0	.24	.43	5	3	86
	12-35	30-35	1.20-1.35	0.2-0.6	0.12-0.16	6.0-8.9	1.0-2.0	.20	.37			
	35-60	35-50	1.30-1.50	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.10	.37			
Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
152: Tankssel-----	0-4	23-27	1.15-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-3.0	.32	.37	2	2	134
	4-12	23-27	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.37			
	12-22	30-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.32			
	22-34	35-50	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.10	.32			
	34-38	---	---	---	---	---	---	---	---			
Wockum-----	0-12	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	12-40	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.37	.43			
	40-60	25-35	1.20-1.40	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.15	.37			
153: Tankssel-----	0-4	23-27	1.15-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-3.0	.32	.37	2	2	134
	4-12	23-27	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.37			
	12-22	30-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.32			
	22-34	35-50	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.10	.32			
	34-38	---	---	---	---	---	---	---	---			
Wockum-----	0-12	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	12-40	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.37	.43			
	40-60	25-35	1.20-1.40	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.15	.37			
154: Tankssel-----	0-4	23-27	1.15-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-3.0	.32	.37	2	2	86
	4-12	23-27	1.15-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.37			
	12-22	30-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.32			
	22-34	35-50	1.25-1.45	0.06-0.2	0.06-0.10	3.0-5.9	0.5-2.0	.10	.32			
	34-38	---	---	---	---	---	---	---	---			
Wockum-----	0-12	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	4	4	86
	12-40	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.37	.43			
	40-60	25-35	1.20-1.40	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.15	.37			
155: Terlan-----	0-4	15-22	1.15-1.35	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.24	.37	1	6	48
	4-10	15-22	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.37	.37			
	10-15	24-35	1.25-1.45	0.6-2	0.11-0.18	3.0-5.9	0.5-2.0	.20	.37			
	15-18	22-30	1.25-1.45	0.6-2	0.10-0.16	3.0-5.9	0.5-1.0	.17	.37			
	18-28	---	---	---	---	---	---	---	---			
	28-60	---	---	---	---	---	---	---	---			
156: Terlan-----	0-4	15-22	1.15-1.35	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.24	.37	1	6	48
	4-10	15-22	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.37	.37			
	10-15	24-35	1.25-1.45	0.6-2	0.11-0.18	3.0-5.9	0.5-2.0	.20	.37			
	15-18	22-30	1.25-1.45	0.6-2	0.10-0.16	3.0-5.9	0.5-1.0	.17	.37			
	18-28	---	---	---	---	---	---	---	---			
	28-60	---	---	---	---	---	---	---	---			
157: Terlan-----	0-9	15-22	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.37	.37	1	5	56
	9-14	24-35	1.25-1.45	0.6-2	0.11-0.18	3.0-5.9	0.5-2.0	.20	.37			
	14-17	22-30	1.25-1.45	0.6-2	0.10-0.16	3.0-5.9	0.5-1.0	.17	.37			
	17-27	---	---	---	---	---	---	---	---			
	27-60	---	---	---	---	---	---	---	---			
Durtash-----	0-5	15-25	1.15-1.30	0.6-2	0.13-0.17	0.0-2.9	1.0-2.0	.20	.37	1	6	48
	5-9	35-45	1.25-1.45	0.06-0.2	0.13-0.17	3.0-5.9	1.0-2.0	.20	.32			
	9-18	35-60	1.25-1.45	0.06-0.2	0.08-0.11	3.0-5.9	0.5-2.0	.17	.32			
	18-28	---	---	---	---	---	---	---	---			
	28-60	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
157: Selah-----	0-9	15-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	9-14	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	14-17	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	17-25	27-35	1.20-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.17	.28			
	25-35	---	---	---	---	---	---	---	---			
	35-60	---	---	---	---	---	---	---	---			
158: Terlan-----	0-9	15-22	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.37	.37	1	5	56
	9-14	24-35	1.25-1.45	0.6-2	0.11-0.18	3.0-5.9	0.5-2.0	.20	.37			
	14-17	22-30	1.25-1.45	0.6-2	0.10-0.16	3.0-5.9	0.5-1.0	.17	.37			
	17-27	---	---	---	---	---	---	---	---			
	27-60	---	---	---	---	---	---	---	---			
Durtash-----	0-5	15-25	1.15-1.30	0.6-2	0.13-0.17	0.0-2.9	1.0-2.0	.20	.37	1	6	48
	5-9	35-45	1.25-1.45	0.06-0.2	0.13-0.17	3.0-5.9	1.0-2.0	.20	.32			
	9-18	35-60	1.25-1.45	0.06-0.2	0.08-0.11	3.0-5.9	0.5-2.0	.17	.32			
	18-28	---	---	---	---	---	---	---	---			
	28-60	---	---	---	---	---	---	---	---			
Selah-----	0-9	15-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	9-14	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	14-17	25-30	1.20-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.5-2.0	.37	.37			
	17-25	27-35	1.20-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.17	.28			
	25-35	---	---	---	---	---	---	---	---			
	35-60	---	---	---	---	---	---	---	---			
159: Timmerman sandy loam--	0-3	5-15	1.20-1.40	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24	3	3	86
	3-16	5-15	1.35-1.55	2-6	0.11-0.15	0.0-2.9	0.0-0.5	.20	.20			
	16-60	0-5	1.40-1.60	20-100	0.03-0.06	0.0-2.9	0.0-0.5	.10	.20			
Timmerman loamy sand--	0-3	0-5	1.25-1.45	2-6	0.08-0.11	0.0-2.9	0.5-1.0	.17	.17	3	2	134
	3-15	5-15	1.35-1.55	2-6	0.11-0.15	0.0-2.9	0.0-0.5	.20	.20			
	15-60	0-5	1.40-1.60	20-100	0.03-0.06	0.0-2.9	0.0-0.5	.10	.20			
160: Tronsen-----	0-7	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.37	5	6	48
	7-18	35-50	1.20-1.40	0.2-0.6	0.10-0.12	3.0-5.9	1.0-3.0	.15	.28			
	18-25	35-50	1.20-1.40	0.06-0.2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.28			
	25-60	35-50	1.20-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.5-1.0	.10	.32			
161: Tronsen-----	0-7	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.37	5	6	48
	7-18	35-50	1.20-1.40	0.2-0.6	0.10-0.12	3.0-5.9	1.0-3.0	.15	.28			
	18-25	35-50	1.20-1.40	0.06-0.2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.28			
	25-60	35-50	1.20-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.5-1.0	.10	.32			
162: Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.05	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-14	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	14-18	---	---	---	---	---	---	---	---			
163: Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
164: Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
165: Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-7	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	7-13	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	13-17	---	---	---	---	---	---	---	---			
166: Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-7	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	7-13	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	13-17	---	---	---	---	---	---	---	---			
167: Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
Benwy-----	0-9	10-15	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	9-14	22-28	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.49			
	14-33	22-28	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.43	.49			
	33-45	22-28	1.30-1.50	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0	.32	.43			
	45-55	---	---	---	---	---	---	---	---			
	55-60	---	---	---	---	---	---	---	---			
Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
168: Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
Benwy-----	0-9	10-15	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	9-14	22-28	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.49			
	14-33	22-28	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.43	.49			
	33-45	22-28	1.30-1.50	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0	.32	.43			
	45-55	---	---	---	---	---	---	---	---			
	55-60	---	---	---	---	---	---	---	---			
Argabak-----	0-2	15-20	1.25-1.35	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	2-6	23-33	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	1.0-2.0	.20	.43			
	6-10	---	---	---	---	---	---	---	---			
169: Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
169:												
Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-6	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	6-12	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	12-24	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	24-28	---	---	---	---	---	---	---	---			
170:												
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-6	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	6-12	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	12-24	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	24-28	---	---	---	---	---	---	---	---			
171:												
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-6	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	6-12	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	12-24	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	24-28	---	---	---	---	---	---	---	---			
172:												
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-6	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	6-12	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	12-24	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	24-28	---	---	---	---	---	---	---	---			
Rubble land-----	0-60	0-0	1.70-2.35	20-100	0.00-0.10	0.0-2.9	0.0-0.1	---	---	---	8	0
173:												
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-7	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	7-16	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	16-20	---	---	---	---	---	---	---	---			
Niben-----	0-5	17-24	1.15-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-3.0	.28	.37	5	5	56
	5-21	29-32	1.25-1.40	0.2-0.6	0.15-0.19	3.0-5.9	1.0-3.0	.32	.37			
	21-53	33-45	1.25-1.40	0.06-0.2	0.15-0.19	3.0-5.9	1.0-2.0	.28	.32			
	53-60	33-45	1.25-1.40	0.06-0.2	0.13-0.19	3.0-5.9	1.0-2.0	.24	.32			
Clerf-----	0-3	20-27	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	3-8	25-30	1.15-1.30	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.10	.32			
	8-14	47-60	1.20-1.30	0.06-0.2	0.10-0.12	3.0-5.9	1.0-2.0	.05	.24			
	14-26	47-60	1.20-1.30	0.06-0.2	0.05-0.10	3.0-5.9	0.5-2.0	.05	.24			
	26-28	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
174:												
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-8	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	8-17	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	17-21	---	---	---	---	---	---	---	---			
Vantage, thin-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	3-7	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	7-13	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	13-17	---	---	---	---	---	---	---	---			
175:												
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	3-9	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	9-16	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	16-20	---	---	---	---	---	---	---	---			
Vantage, thin-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	3-6	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	6-14	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	14-18	---	---	---	---	---	---	---	---			
176:												
Vantage-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	3-9	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	9-16	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	16-20	---	---	---	---	---	---	---	---			
Vantage, thin-----	0-3	20-25	1.15-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	3-6	25-40	1.25-1.45	0.2-0.6	0.10-0.12	3.0-5.9	1.0-2.0	.05	.28			
	6-14	45-65	1.15-1.40	0.06-0.2	0.04-0.09	3.0-5.9	0.5-2.0	.05	.24			
	14-18	---	---	---	---	---	---	---	---			
177:												
Wanapum-----	0-6	10-15	1.10-1.30	0.6-2	0.11-0.16	0.0-2.9	0.5-1.0	.20	.37	1	6	48
	6-13	20-35	1.25-1.45	0.2-0.6	0.08-0.11	0.0-2.9	0.0-0.5	.17	.37			
	13-23	---	---	---	---	---	---	---	---			
	23-60	---	---	---	---	---	---	---	---			
178:												
Wanapum loam-----	0-6	10-15	1.15-1.30	0.6-2	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49	1	5	56
	6-13	20-35	1.25-1.45	0.2-0.6	0.08-0.11	0.0-2.9	0.0-0.5	.17	.43			
	13-23	---	---	---	---	---	---	---	---			
	23-60	---	---	---	---	---	---	---	---			
Wanapum cobbly loam---	0-6	10-15	1.10-1.30	0.6-2	0.11-0.16	0.0-2.9	0.5-1.0	.20	.37	1	6	48
	6-13	20-35	1.25-1.45	0.2-0.6	0.08-0.11	0.0-2.9	0.0-0.5	.17	.37			
	13-23	---	---	---	---	---	---	---	---			
	23-60	---	---	---	---	---	---	---	---			
179:												
Wanapum loam-----	0-6	10-15	1.15-1.30	0.6-2	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49	1	5	56
	6-13	20-35	1.25-1.45	0.2-0.6	0.08-0.11	0.0-2.9	0.0-0.5	.17	.43			
	13-23	---	---	---	---	---	---	---	---			
	23-60	---	---	---	---	---	---	---	---			
Wanapum cobbly loam---	0-6	10-15	1.10-1.30	0.6-2	0.11-0.16	0.0-2.9	0.5-1.0	.20	.37	1	6	48
	6-13	20-35	1.25-1.45	0.2-0.6	0.08-0.11	0.0-2.9	0.0-0.5	.17	.37			
	13-23	---	---	---	---	---	---	---	---			
	23-60	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
180: Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	8	0
	4-10	38-50	1.25-1.45	0.06-0.2	0.06-0.12	3.0-5.9	1.0-2.0	.10	.28			
	10-30	45-55	1.30-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	30-34	---	---	---	---	---	---	---	---			
181: Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	8	0
	4-10	38-50	1.25-1.45	0.06-0.2	0.06-0.12	3.0-5.9	1.0-2.0	.10	.28			
	10-30	45-55	1.30-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	30-34	---	---	---	---	---	---	---	---			
182: Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	8	0
	4-10	38-50	1.25-1.45	0.06-0.2	0.06-0.12	3.0-5.9	1.0-2.0	.10	.28			
	10-30	45-55	1.30-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	30-34	---	---	---	---	---	---	---	---			
Tronsen-----	0-7	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.37	5	6	48
	7-18	35-50	1.20-1.40	0.2-0.6	0.10-0.12	3.0-5.9	1.0-3.0	.15	.28			
	18-25	35-50	1.20-1.40	0.06-0.2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.28			
	25-60	35-50	1.20-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.5-1.0	.10	.32			
Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
183: Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	8	0
	4-10	38-50	1.25-1.45	0.06-0.2	0.06-0.12	3.0-5.9	1.0-2.0	.10	.28			
	10-30	45-55	1.30-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	30-34	---	---	---	---	---	---	---	---			
Tronsen-----	0-7	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.37	5	6	48
	7-18	35-50	1.20-1.40	0.2-0.6	0.10-0.12	3.0-5.9	1.0-3.0	.15	.28			
	18-25	35-50	1.20-1.40	0.06-0.2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.28			
	25-60	35-50	1.20-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.5-1.0	.10	.32			
Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			
184: Whiskeydick-----	0-4	17-23	1.15-1.35	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.15	.32	2	8	0
	4-10	38-50	1.25-1.45	0.06-0.2	0.06-0.12	3.0-5.9	1.0-2.0	.10	.28			
	10-30	45-55	1.30-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	30-34	---	---	---	---	---	---	---	---			
Tronsen-----	0-7	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.37	5	6	48
	7-18	35-50	1.20-1.40	0.2-0.6	0.10-0.12	3.0-5.9	1.0-3.0	.15	.28			
	18-25	35-50	1.20-1.40	0.06-0.2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.28			
	25-60	35-50	1.20-1.40	0.06-0.2	0.05-0.10	3.0-5.9	0.5-1.0	.10	.32			
Camaspatch-----	0-2	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	2-12	35-40	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	12-19	45-65	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.20			
	19-23	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
185: Winchester-----	0-6	0-5	1.40-1.65	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17	5	1	180
	6-17	0-5	1.40-1.65	6-20	0.05-0.09	0.0-2.9	0.5-1.0	.15	.17			
	17-60	0-5	1.40-1.65	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.15	.17			
Sagehill-----	0-4	5-10	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.55	.55	5	3	86
	4-35	5-10	1.30-1.45	0.6-2	0.15-0.17	0.0-2.9	0.0-1.0	.55	.55			
	35-50	5-10	1.35-1.50	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	50-60	2-8	1.35-1.50	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.43	.55			
Burbank-----	0-5	0-5	1.40-1.60	6-20	0.04-0.07	0.0-2.9	0.5-1.0	.10	.24	5	3	86
	5-17	0-5	1.40-1.60	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
	17-60	0-2	1.50-1.65	20-100	0.01-0.03	0.0-2.9	0.0-0.5	.05	.20			
186: Wipple-----	0-6	27-35	1.10-1.30	0.2-2	0.14-0.19	0.0-2.9	1.0-2.0	.15	.28	5	7	38
	6-20	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	20-26	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-1.0	.05	.24			
	26-60	32-40	1.25-1.55	0.2-0.6	0.06-0.12	3.0-5.9	0.0-0.5	.05	.28			
187: Wipple-----	0-6	27-35	1.10-1.30	0.2-2	0.14-0.19	0.0-2.9	1.0-2.0	.15	.28	5	7	38
	6-22	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	22-25	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-1.0	.05	.24			
	25-60	32-40	1.25-1.55	0.2-0.6	0.06-0.12	3.0-5.9	0.0-0.5	.05	.28			
188: Wipple-----	0-4	27-35	1.10-1.30	0.2-2	0.14-0.19	0.0-2.9	1.0-2.0	.15	.28	5	7	38
	4-19	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-2.0	.05	.24			
	19-23	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-1.0	.05	.24			
	23-60	32-40	1.25-1.55	0.2-0.6	0.06-0.12	3.0-5.9	0.0-0.5	.05	.28			
189: Wockum-----	0-12	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	12-40	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.37	.43			
	40-60	25-35	1.20-1.40	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.15	.37			
190: Wockum-----	0-12	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	12-40	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.37	.43			
	40-60	25-35	1.20-1.40	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.15	.37			
191: Wockum-----	0-12	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	12-40	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.37	.43			
	40-60	25-35	1.20-1.40	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.15	.37			
Blint-----	0-6	18-23	1.15-1.30	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.43	2	4	86
	6-14	18-23	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.43			
	14-22	18-23	1.25-1.45	0.2-0.6	0.09-0.13	0.0-2.9	0.5-2.0	.15	.43			
	22-37	23-33	1.25-1.45	0.2-0.6	0.03-0.13	0.0-2.9	0.5-2.0	.10	.55			
	37-40	---	---	---	---	---	---	---	---			
192: Wockum-----	0-12	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	12-40	22-35	1.20-1.40	0.2-0.6	0.12-0.15	0.0-2.9	0.5-2.0	.37	.43			
	40-60	25-35	1.20-1.40	0.2-0.6	0.11-0.14	3.0-5.9	0.5-1.0	.15	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
192: Blint-----	0-6	18-23	1.15-1.30	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.43	2	4	86
	6-14	18-23	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.15	.43			
	14-22	18-23	1.25-1.45	0.2-0.6	0.09-0.13	0.0-2.9	0.5-2.0	.15	.43			
	22-37	23-33	1.25-1.45	0.2-0.6	0.03-0.13	0.0-2.9	0.5-2.0	.10	.55			
	37-40	---	---	---	---	---	---	---	---			
Windry-----	0-3	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-3.0	.15	.43	1	7	38
	3-7	15-27	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37			
	7-15	20-30	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37			
	15-19	---	---	---	---	---	---	---	---			
193: Zen-----	0-10	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	10-22	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	22-27	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	27-31	---	---	---	---	---	---	---	---			
194: Zen-----	0-10	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	10-22	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	22-27	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	27-31	---	---	---	---	---	---	---	---			
195: Zen-----	0-10	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	10-22	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	22-27	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	27-31	---	---	---	---	---	---	---	---			
196: Zen-----	0-10	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	10-22	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	22-27	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	27-31	---	---	---	---	---	---	---	---			
Benwy-----	0-4	10-15	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	4-9	10-15	1.15-1.35	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.49	.49			
	9-14	22-28	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.49			
	14-33	22-28	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.43	.49			
	33-45	22-28	1.30-1.50	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0	.32	.43			
	45-49	---	---	---	---	---	---	---	---			
Laric-----	0-3	10-18	1.25-1.35	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	3-8	23-30	1.30-1.40	0.2-0.6	0.13-0.17	0.0-2.9	1.0-2.0	.20	.43			
	8-12	---	---	---	---	---	---	---	---			
197: Zen-----	0-10	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	10-22	18-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	22-27	18-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	27-31	---	---	---	---	---	---	---	---			
Marlic-----	0-6	17-23	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.32	.37	1	5	56
	6-12	28-33	1.25-1.40	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.24	.32			
	12-15	35-40	1.25-1.40	0.2-0.6	0.15-0.17	3.0-5.9	0.5-1.0	.20	.32			
	15-19	---	---	---	---	---	---	---	---			
Laric-----	0-3	10-18	1.25-1.35	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.43	1	7	38
	3-8	23-30	1.30-1.40	0.2-0.6	0.13-0.17	0.0-2.9	1.0-2.0	.20	.43			
	8-12	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind	
								Kw	Kf	T	erodi- bility group	erodi- bility index	
	In	Pct	g/cc	In/hr	In/in	Pct	Pct						
198:													
Torrifluvents, very cobbley-----	0-2	5-10	1.10-1.35	2-6	0.08-0.11	0.0-2.9	0.5-1.0	.17	.55	5	5	56	
	2-60	5-10	1.20-1.55	2-6	0.04-0.07	0.0-2.9	0.0-1.0	.05	.32				
Torrifluvents, gravelly-----	0-2	5-10	1.10-1.35	2-6	0.09-0.13	0.0-2.9	0.5-1.0	.32	.55	5	4	86	
	2-60	5-10	1.20-1.55	2-6	0.04-0.07	0.0-2.9	0.0-1.0	.05	.32				
199:													
Haploxerolls sandy loam-----	0-14	5-10	1.20-1.40	2-6	0.11-0.13	0.0-2.9	1.0-2.0	.32	.32	5	3	86	
	14-60	5-15	1.25-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.55	.55				
Haploxerolls silt loam	0-14	5-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	5	4L	86	
	14-60	5-15	1.25-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.55	.55				
200:													
Malaga, cobbley-----	0-4	5-15	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37	2	4	86	
	4-9	5-15	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37				
	9-15	5-15	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37				
	15-60	0-5	1.40-1.65	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20				
Malaga, stony-----	0-4	5-15	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.20	.37	2	4	86	
	4-9	5-15	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37				
	9-15	5-15	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37				
	15-60	0-5	1.40-1.65	20-100	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20				
201:													
Semal, cobbley-----	0-4	5-15	1.20-1.40	0.6-2	0.09-0.12	0.0-2.9	0.5-1.0	.20	.37	3	4	86	
	4-12	5-15	1.30-1.50	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5	.10	.37				
	12-26	5-15	1.30-1.65	2-6	0.03-0.08	0.0-2.9	0.0-0.5	.10	.37				
	26-55	---	---	---	---	---	---	---	---				
	55-60	5-10	1.40-1.65	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.10	.37				
Semal, very cobbley----	0-5	5-15	1.20-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37	3	5	56	
	5-14	5-15	1.30-1.50	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5	.10	.37				
	14-27	5-15	1.30-1.65	2-6	0.03-0.08	0.0-2.9	0.0-0.5	.10	.37				
	27-55	---	---	---	---	---	---	---	---				
	55-60	5-10	1.40-1.65	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.10	.37				
Semal, stony-----	0-4	5-15	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.20	.37	3	4	86	
	4-13	5-15	1.30-1.50	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5	.10	.37				
	13-22	5-15	1.30-1.65	2-6	0.03-0.08	0.0-2.9	0.0-0.5	.10	.37				
	22-55	---	---	---	---	---	---	---	---				
	55-60	5-10	1.40-1.65	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.10	.37				
202:													
Water.													
203:													
Pits-----	0-60	---	---	---	---	---	---	---	---	---	8	0	
204:													
Dam.													
205:													
Arents-----	0-60	0-2	1.50-1.65	20-100	0.01-0.03	0.0-2.9	0.0-0.5	.05	.24	---	---	---	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K <sub>sat</sub> )	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
206: Burbank-----	0-4	0-5	1.50-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.24	.28	4	2	134
	4-23	0-5	1.50-1.65	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.20	.24			
	23-60	0-2	1.50-1.65	20-100	0.01-0.03	0.0-2.9	0.0-0.5	.05	.24			
207: Rock Creek-----	0-2	20-27	1.15-1.30	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.20	.37	1	8	0
	2-10	35-45	1.15-1.40	0.2-0.6	0.04-0.06	3.0-5.9	---	.05	.32			
	10-14	---	---	---	---	---	---	---	---			
208: Kiona-----	0-5	7-15	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.37	2	6	48
	5-14	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-1.0	.20	.43			
	14-60	3-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.37			
209: Lickskillet-----	0-3	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.17	.32	1	8	0
	3-20	23-33	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.5-1.0	.20	.32			
	20-24	---	---	---	---	---	---	---	---			
210: Starbuck-----	0-6	5-18	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	6-16	5-18	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	16-20	---	---	2-20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0
211: Starbuck-----	0-6	5-18	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	6-16	5-18	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	16-20	---	---	2-20	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	8	0
212: Willis-----	0-6	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	6-22	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-34	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	34-38	---	---	---	---	---	---	---	---			
	38-42	---	---	---	---	---	---	---	---			
213: Willis-----	0-6	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	6-22	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-34	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	34-38	---	---	---	---	---	---	---	---			
	38-42	---	---	---	---	---	---	---	---			
214: Willis-----	0-6	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	6-22	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-34	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	34-38	---	---	---	---	---	---	---	---			
	38-42	---	---	---	---	---	---	---	---			
215: Bakeoven-----	0-4	15-25	1.25-1.35	0.1-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37	1	8	0
	4-10	18-33	1.30-1.40	0.1-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32			
	10-14	---	---	---	---	---	---	---	---			

Table 16.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
1: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
2: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
3: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
4: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
5: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
6: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
7: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
Camaspach-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-6	20-30	6.6-7.3	0	0	0	0
	6-14	20-30	6.6-7.3	0	0	0	0
	14-18	---	---	---	---	---	---
8: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
9: Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
9:							
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
10:							
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
11:							
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-11	20-30	6.6-7.3	0	0	0	0
	11-22	20-30	6.6-7.8	0	0	0	0
	22-26	---	---	---	---	---	---
12:							
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-11	20-30	6.6-7.3	0	0	0	0
	11-22	20-30	6.6-7.8	0	0	0	0
	22-26	---	---	---	---	---	---
13:							
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
Windry-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-7	10-20	6.6-7.8	0	0	0	0
	7-15	10-20	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
14:							
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
Zen-----	0-10	10-20	6.1-7.8	0	0	0	0
	10-22	10-20	6.6-8.4	0	0	0	0
	22-27	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	27-31	---	---	---	---	---	---
Grinrod-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-11	10-20	6.6-7.8	0	0	0	0
	11-25	20-30	6.6-7.8	0	0	0	0
	25-29	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
15:							
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
Zen-----	0-10	10-20	6.1-7.8	0	0	0	0
	10-22	10-20	6.6-8.4	0	0	0	0
	22-27	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	27-31	---	---	---	---	---	---
Grinrod-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-11	10-20	6.6-7.8	0	0	0	0
	11-25	20-30	6.6-7.8	0	0	0	0
	25-29	---	---	---	---	---	---
16:							
Argids-----	0-4	5.0-10	6.6-7.8	---	---	---	---
	4-24	10-20	6.6-7.8	---	---	0.0-2.0	---
	24-60	5.0-10	7.4-8.4	---	---	0.0-2.0	---
17:							
Argids-----	0-10	10-20	6.6-7.8	---	---	---	---
	10-35	10-20	6.6-7.8	---	---	0.0-2.0	---
	35-60	5.0-10	7.4-8.4	---	---	0.0-2.0	---
18:							
Argixerolls-----	0-15	10-20	6.6-7.3	0	0	0	0
	15-43	10-20	6.6-7.8	0	0	0	0
	43-60	20-30	6.6-8.4	0-5	0	0.0-2.0	0-5
Durixerolls-----	0-9	10-20	6.6-7.8	0-5	0	0	0
	9-12	15-25	7.4-8.4	0-5	0	0	0
	12-21	15-25	7.4-8.4	5-25	0	0.0-2.0	0-1
	21-31	---	---	---	---	---	---
	31-60	---	---	---	---	---	---
19:							
Argixerolls-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-60	20-30	6.6-8.4	0-5	0	0.0-2.0	0-5
Durixerolls-----	0-6	10-20	6.6-7.3	0-5	0	0	0
	6-14	15-25	7.4-8.4	0-5	0	0	0
	14-23	15-25	7.4-8.4	5-25	0	0.0-2.0	0-1
	23-33	---	---	---	---	---	---
	33-60	---	---	---	---	---	---
20:							
Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	6.6-7.8	0-10	0	0	0-5
	37-60	10-20	7.4-9.0	5-20	0	0.0-2.0	0-5
21:							
Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-14	10-20	6.6-7.8	0	0	0	0
	14-33	10-20	6.6-7.8	0	0	0	0
	33-45	10-20	7.4-9.0	5-20	0	0.0-2.0	0-2
	45-49	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
22:							
Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-14	10-20	6.6-7.8	0	0	0	0
	14-33	10-20	6.6-7.8	0	0	0	0
	33-45	10-20	7.4-9.0	5-20	0	0.0-2.0	0-2
	45-49	---	---	---	---	---	---
23:							
Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-14	10-20	6.6-7.8	0	0	0	0
	14-33	10-20	6.6-7.8	0	0	0	0
	33-45	10-20	7.4-9.0	5-20	0	0.0-2.0	0-2
	45-49	---	---	---	---	---	---
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
24:							
Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-14	10-20	6.6-7.8	0	0	0	0
	14-33	10-20	6.6-7.8	0	0	0	0
	33-45	10-20	7.4-9.0	5-20	0	0.0-2.0	0-2
	45-49	---	---	---	---	---	---
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
25:							
Blint-----	0-6	5.0-10	6.6-7.3	0	0	0	0
	6-14	5.0-10	6.6-7.3	0	0	0	0
	14-22	10-15	6.6-7.3	0	0	0	0
	22-37	10-15	6.6-7.3	1-5	0	0	0
	37-41	---	---	---	---	---	---
26:							
Blint-----	0-6	5.0-10	6.6-7.3	0	0	0	0
	6-14	5.0-10	6.6-7.3	0	0	0	0
	14-22	10-15	6.6-7.3	0	0	0	0
	22-37	10-15	6.6-7.3	1-5	0	0	0
	37-41	---	---	---	---	---	---
27:							
Blint-----	0-6	5.0-10	6.6-7.3	0	0	0	0
	6-14	5.0-10	6.6-7.3	0	0	0	0
	14-22	10-15	6.6-7.3	0	0	0	0
	22-37	10-15	6.6-7.3	1-5	0	0	0
	37-41	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
27: Windry-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-7	10-20	6.6-7.8	0	0	0	0
	7-15	10-20	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
28: Brehm-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-10	10-20	7.4-7.8	---	---	---	---
	10-24	15-25	7.4-8.4	15-20	---	0.0-2.0	---
	24-34	---	---	---	---	---	---
	34-60	---	---	---	---	---	---
29: Brehm-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-10	10-20	7.4-7.8	---	---	---	---
	10-24	15-25	7.4-8.4	15-20	---	0.0-2.0	---
	24-34	---	---	---	---	---	---
	34-60	---	---	---	---	---	---
Gorskel-----	0-5	10-20	6.6-7.3	0	0	0	0
	5-10	10-20	7.4-7.8	0	0	0	0
	10-16	10-20	7.4-8.4	1-15	0	0.0-2.0	0-1
	16-26	---	---	---	---	---	---
	26-60	---	---	---	---	---	---
Gorst-----	0-6	10-20	6.6-7.8	0	0	0	0
	6-14	10-20	7.4-7.8	0	0	0.0-2.0	0
	14-24	---	---	---	---	---	---
	24-60	---	---	---	---	---	---
30: Caliralls-----	0-8	10-20	6.6-7.8	0	0	0	0
	8-30	10-20	6.6-7.8	0	0	0	0
	30-42	10-20	7.4-8.4	20-35	0	0.0-2.0	0
	42-60	10-25	7.9-9.0	25-40	0	0.0-2.0	0
31: Caliralls-----	0-8	10-20	6.6-7.8	0	0	0	0
	8-30	10-20	6.6-7.8	0	0	0	0
	30-42	10-20	7.4-8.4	20-35	0	0.0-2.0	0
	42-60	10-25	7.9-9.0	25-40	0	0.0-2.0	0
32: Caliralls-----	0-8	10-20	6.6-7.8	0	0	0	0
	8-30	10-20	6.6-7.8	0	0	0	0
	30-42	10-20	7.4-8.4	20-35	0	0.0-2.0	0
	42-60	10-25	7.9-9.0	25-40	0	0.0-2.0	0
Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	10-20	6.6-7.3	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-24	20-30	6.6-7.8	0	0	0	0
	24-28	---	---	---	---	---	---
33: Caliralls-----	0-8	10-20	6.6-7.8	0	0	0	0
	8-30	10-20	6.6-7.8	0	0	0	0
	30-42	10-20	7.4-8.4	20-35	0	0.0-2.0	0
	42-60	10-25	7.9-9.0	25-40	0	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
33: Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	10-20	6.6-7.3	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-24	20-30	6.6-7.8	0	0	0	0
	24-28	---	---	---	---	---	---
34: Caliralls-----	0-8	10-20	6.6-7.8	0	0	0	0
	8-30	10-20	6.6-7.8	0	0	0	0
	30-42	10-20	7.4-8.4	20-35	0	0.0-2.0	0
	42-60	10-25	7.9-9.0	25-40	0	0.0-2.0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
35: Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
36: Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
37: Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-5	20-30	6.6-7.3	0	0	0	0
	5-13	20-30	6.6-7.3	0	0	0	0
	13-17	---	---	---	---	---	---
38: Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-5	20-30	6.6-7.3	0	0	0	0
	5-13	20-30	6.6-7.3	0	0	0	0
	13-17	---	---	---	---	---	---
39: Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
Colockum-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-33	10-20	6.6-7.8	0	0	0	0
	33-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
40: Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
40:							
Tanksel-----	0-4	---	6.6-7.8	0	0	0	0
	4-12	---	6.6-7.8	0	0	0	0
	12-22	15-25	6.6-7.8	0	0	0	0
	22-34	20-30	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
41:							
Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
Tanksel-----	0-4	---	6.6-7.8	0	0	0	0
	4-11	---	6.6-7.8	0	0	0	0
	11-23	15-25	6.6-7.8	0	0	0	0
	23-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
Lainand-----	0-4	---	6.1-7.3	0	0	0	0
	4-22	5.0-10	6.1-7.3	0	0	0	0
	22-43	10-20	6.1-7.3	0	0	0	0
	43-47	---	---	---	---	---	---
42:							
Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-11	20-30	6.6-7.3	0	0	0	0
	11-22	20-30	6.6-7.8	0	0	0	0
	22-26	---	---	---	---	---	---
43:							
Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
44:							
Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
45:							
Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
45: Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
46: Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	10-20	6.6-7.3	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-24	20-30	6.6-7.8	0	0	0	0
	24-28	---	---	---	---	---	---
47: Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	10-20	6.6-7.3	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-24	20-30	6.6-7.8	0	0	0	0
	24-28	---	---	---	---	---	---
48: Colockum-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-33	10-20	6.6-7.8	0	0	0	0
	33-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
49: Colockum-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-33	10-20	6.6-7.8	0	0	0	0
	33-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
50: Colockum-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-33	10-20	6.6-7.8	0	0	0	0
	33-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
51: Colockum-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-33	10-20	6.6-7.8	0	0	0	0
	33-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
Tronsen-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-18	15-25	6.6-7.3	0	0	0	0
	18-25	15-25	6.6-7.3	0	0	0	0
	25-60	15-25	6.6-7.8	0	0	0	0
52: Disage-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-9	15-25	6.6-7.3	---	---	---	---
	9-18	25-35	6.6-7.3	---	---	---	---
	18-22	---	---	---	---	---	---
53: Disage-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-9	15-25	6.6-7.3	---	---	---	---
	9-18	25-35	6.6-7.3	---	---	---	---
	18-22	---	---	---	---	---	---
54: Disage-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-9	15-25	6.6-7.3	---	---	---	---
	9-18	25-35	6.6-7.3	---	---	---	---
	18-22	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
55:							
Disage-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-9	15-25	6.6-7.3	---	---	---	---
	9-18	25-35	6.6-7.3	---	---	---	---
	18-22	---	---	---	---	---	---
Clenage-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-16	20-30	6.6-7.8	0	0	0	0
	16-25	30-40	7.4-8.4	5-15	0	0.0-2.0	0-2
	25-29	---	---	---	---	---	---
56:							
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
57:							
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
58:							
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
Disage-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-9	15-25	6.6-7.3	---	---	---	---
	9-18	25-35	6.6-7.3	---	---	---	---
	18-22	---	---	---	---	---	---
Kiona-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-21	10-20	7.4-8.4	1-5	0	0	0
	21-60	10-20	7.9-8.4	1-5	0	0.0-2.0	0
59:							
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
Rubble land-----	0-60	---	---	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
60:							
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
Rubble land-----	0-60	---	---	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
61:							
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
Sohappy-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-17	10-20	7.4-8.4	1-5	---	---	---
	17-41	10-20	7.9-9.0	5-20	---	0.0-2.0	---
	41-47	10-20	7.9-9.0	15-35	---	0.0-2.0	---
	47-51	---	---	---	---	---	---
Fortyday-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-17	10-20	6.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---
62:							
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
Sohappy-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-17	10-20	7.4-8.4	1-5	---	---	---
	17-41	10-20	7.9-9.0	5-20	---	0.0-2.0	---
	41-47	10-20	7.9-9.0	15-35	---	0.0-2.0	---
	47-51	---	---	---	---	---	---
Fortyday-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-17	10-20	6.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---
63:							
Drysel-----	0-11	10-20	6.6-7.8	0	0	0	0
	11-27	10-20	7.4-8.4	0	0	0.0-2.0	0
	27-31	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	31-41	---	---	---	---	---	---
	41-60	---	---	---	---	---	---
64:							
Drysel-----	0-11	10-20	6.6-7.8	0	0	0	0
	11-27	10-20	7.4-8.4	0	0	0.0-2.0	0
	27-31	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	31-41	---	---	---	---	---	---
	41-60	---	---	---	---	---	---
65:							
Durtash-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-14	20-30	7.4-7.8	0	0	0	0
	14-19	30-40	7.4-8.4	1-5	0	0.0-2.0	0-1
	19-29	---	---	---	---	---	---
	29-60	---	---	---	---	---	---
66:							
Esquatzel-----	0-10	5.0-10	6.6-7.8	0	0	0	0
	10-40	5.0-10	6.6-8.4	1-5	0	0.0-2.0	0
	40-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
67:							
Esquatzel-----	0-10	5.0-10	6.6-7.8	0	0	0	0
	10-40	5.0-10	6.6-8.4	1-5	0	0.0-2.0	0
	40-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
68:							
Esquatzel-----	0-33	5.0-10	6.6-7.8	0	0	0	0
	33-44	5.0-10	6.6-8.4	1-5	0	0.0-2.0	0
	44-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
Aquolls-----	0-6	10-20	6.6-8.4	0	0	0.0-2.0	0-2
	6-10	10-20	6.6-8.4	0	0	0.0-2.0	0-2
	10-20	10-20	6.6-8.4	0	0	0.0-2.0	0-2
	20-60	5.0-10	6.6-8.4	0	0	0.0-2.0	0-2
Weirman-----	0-12	10-20	6.6-7.8	0	0	0	0
	12-18	5.0-10	6.6-7.8	0	0	0	0
	18-60	5.0-10	6.6-7.8	0	0	0	0
69:							
Esquatzel-----	0-10	5.0-10	6.6-7.8	0	0	0	0
	10-40	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
	40-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
Weirman fine sandy loam-----	0-15	10-20	6.6-7.8	---	---	---	---
	15-18	10-20	6.6-7.8	---	---	---	---
	18-27	5.0-10	6.6-7.8	---	---	---	---
	27-60	5.0-10	6.6-7.8	---	---	---	---
Weirman very cobbly sandy loam-----	0-10	10-20	6.6-7.8	0	0	0	0
	10-18	5.0-10	6.6-7.8	0	0	0	0
	18-60	5.0-10	6.6-7.8	0	0	0	0
70:							
Finley sandy loam---	0-4	10-15	6.6-7.8	0	0	0	0
	4-13	10-20	6.6-7.8	0	0	0	0
	13-22	10-20	7.4-8.4	0	0	0	0
	22-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	38-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
Finley cobbly sandy loam-----	0-8	10-15	6.6-7.8	0	0	0	0
	8-20	10-20	7.4-8.4	0	0	0	0
	20-29	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	29-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
71:							
Fortyday-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-6	10-20	6.6-7.8	0	0	0	0
	6-15	10-20	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
Nevo-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
72:							
Fortyday-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-6	10-20	6.6-7.8	0	0	0	0
	6-15	10-20	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
Nevo-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---
73:							
Fortyday-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-6	10-20	6.6-7.8	0	0	0	0
	6-15	10-20	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
Drino-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-19	10-20	6.6-7.8	1-5	0	0	0
	19-38	10-20	7.4-8.4	1-5	0	0.0-2.0	0-2
	38-42	---	---	---	---	---	---
Sohappy-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-17	10-20	7.4-8.4	1-5	---	---	---
	17-41	10-20	7.9-9.0	5-20	---	0.0-2.0	---
	41-47	10-20	7.9-9.0	15-35	---	0.0-2.0	---
	47-51	---	---	---	---	---	---
74:							
Fortyday-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-10	10-20	6.6-7.8	0	0	0	0
	10-13	10-20	6.6-7.8	0	0	0	0
	13-17	---	---	---	---	---	---
Nevo-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
75:							
Fortyday-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-6	10-20	6.6-7.8	0	0	0	0
	6-15	10-20	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
Rubble land-----	0-60	---	---	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
76:							
Frint-----	0-12	---	6.6-7.3	0	0	0	0
	12-20	10-20	6.6-7.8	0	0	0	0
	20-28	10-20	6.6-7.8	0	0	0	0
	28-32	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
76:							
Gidwin-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-7	10-20	6.6-7.3	0	0	0	0
	7-17	10-20	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Rubble land-----	0-60	---	---	0	0	0	0
77:							
Frint-----	0-12	---	6.6-7.3	0	0	0	0
	12-20	10-20	6.6-7.8	0	0	0	0
	20-28	10-20	6.6-7.8	0	0	0	0
	28-32	---	---	---	---	---	---
Hogranch-----	0-8	---	6.6-7.3	0	0	0	0
	8-21	---	6.6-7.3	0	0	0	0
	21-46	10-20	6.6-7.3	0	0	0	0
	46-50	---	---	---	---	---	---
78:							
Frint-----	0-12	---	6.6-7.3	0	0	0	0
	12-20	10-20	6.6-7.8	0	0	0	0
	20-28	10-20	6.6-7.8	0	0	0	0
	28-32	---	---	---	---	---	---
Hogranch-----	0-8	---	6.6-7.3	0	0	0	0
	8-21	---	6.6-7.3	0	0	0	0
	21-46	10-20	6.6-7.3	0	0	0	0
	46-50	---	---	---	---	---	---
Gidwin-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-7	10-20	6.6-7.3	0	0	0	0
	7-17	10-20	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
79:							
Gorskel silt loam----	0-5	10-20	6.6-7.3	0	0	0	0
	5-10	10-20	7.4-7.8	0	0	0	0
	10-16	10-20	7.4-8.4	1-15	0	0.0-2.0	0-1
	16-26	---	---	---	---	---	---
	26-60	---	---	---	---	---	---
Gorskel cobbly loam--	0-5	10-20	6.6-7.3	0	0	0	0
	5-9	10-20	7.4-7.8	0	0	0	0
	9-14	10-20	7.4-8.4	1-15	0	0.0-2.0	0-1
	14-24	---	---	---	---	---	---
	24-60	---	---	---	---	---	---
80:							
Gorst-----	0-6	10-20	6.6-7.8	0	0	0	0
	6-14	10-20	7.4-7.8	0	0	0.0-2.0	0
	14-24	---	---	---	---	---	---
	24-60	---	---	---	---	---	---
81:							
Grinrod-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-11	10-20	6.6-7.8	0	0	0	0
	11-25	20-30	6.6-7.8	0	0	0	0
	25-29	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
81: Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
82: Grinrod-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-11	10-20	6.6-7.8	0	0	0	0
	11-25	20-30	6.6-7.8	0	0	0	0
	25-29	---	---	---	---	---	---
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
83: Haploxerolls-----	0-14	10-20	7.9-9.0	5-15	0	0.0-4.0	0-5
	14-60	10-20	7.4-8.4	1-5	0	0.0-2.0	0-5
Orthents-----	0-6	5.0-10	6.6-7.8	0	0	0	0
	6-60	5.0-10	7.4-8.4	0	0	0.0-2.0	0
Aquolls-----	0-6	10-20	6.6-8.4	0	0	0.0-2.0	0-2
	6-10	10-20	6.6-8.4	0	0	0.0-2.0	0-2
	10-20	10-20	6.6-8.4	0	0	0.0-2.0	0-2
	20-60	5.0-10	6.6-8.4	0	0	0.0-2.0	0-2
84: Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
85: Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
86: Kiona-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-21	10-20	7.4-8.4	1-5	0	0	0
	21-60	10-20	7.9-8.4	1-5	0	0.0-2.0	0
87: Kiona-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-21	10-20	7.4-8.4	1-5	0	0	0
	21-60	10-20	7.9-8.4	1-5	0	0.0-2.0	0
Rubble land-----	0-60	---	---	0	0	0	0
88: Lainand-----	0-4	---	6.1-7.3	0	0	0	0
	4-22	5.0-10	6.1-7.3	0	0	0	0
	22-43	10-20	6.1-7.3	0	0	0	0
	43-47	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
88:							
Tanksel-----	0-4	---	6.6-7.8	0	0	0	0
	4-12	---	6.6-7.8	0	0	0	0
	12-22	15-25	6.6-7.8	0	0	0	0
	22-34	20-30	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
89:							
Laric-----	0-3	10-20	6.6-7.8	---	---	---	---
	3-8	10-20	6.6-7.8	---	---	---	---
	8-12	---	---	---	---	---	---
90:							
Laric-----	0-3	10-20	6.6-7.8	---	---	---	---
	3-8	10-20	6.6-7.8	---	---	---	---
	8-12	---	---	---	---	---	---
Zen-----	0-12	10-20	6.1-7.8	0	0	0	0
	12-18	10-20	6.6-8.4	0	0	0	0
	18-25	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	25-29	---	---	---	---	---	---
91:							
Levnik-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-8	20-30	6.6-7.8	0	0	0	0
	8-13	20-30	6.6-7.8	0	0	0	0
	13-16	30-40	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
Nosser-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-10	20-30	6.6-7.8	0	0	0	0
	10-18	20-30	6.6-7.8	0	0	0	0
	18-22	20-30	7.4-8.4	2-5	0	0	0
	22-26	---	---	---	---	---	---
Nevo-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-9	15-25	6.6-7.8	0	0	0	0
	9-13	---	---	---	---	---	---
92:							
Malaga-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-15	10-20	6.6-7.8	0	0	0	0
	15-60	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
93:							
Malaga-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-15	10-20	6.6-7.8	0	0	0	0
	15-60	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
94:							
Manastash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-16	30-40	6.6-8.4	0	0	0	0
	16-25	30-40	7.4-8.4	1-15	0	0.0-2.0	0-1
	25-35	---	---	---	---	---	---
	35-60	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
95:							
Manastash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-16	30-40	6.6-8.4	0	0	0	0
	16-25	30-40	7.4-8.4	1-15	0	0.0-2.0	0-1
	25-35	---	---	---	---	---	---
	35-60	---	---	---	---	---	---
96:							
Manastash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-16	30-40	6.6-8.4	0	0	0	0
	16-25	30-40	7.4-8.4	1-15	0	0.0-2.0	0-1
	25-35	---	---	---	---	---	---
	35-60	---	---	---	---	---	---
Durtash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-15	20-40	7.4-8.4	0-5	0	0.0-2.0	0-1
	15-25	---	---	---	---	---	---
	25-60	---	---	---	---	---	---
97:							
Manastash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-16	30-40	6.6-8.4	0	0	0	0
	16-25	30-40	7.4-8.4	1-15	0	0.0-2.0	0-1
	25-35	---	---	---	---	---	---
	35-60	---	---	---	---	---	---
Durtash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-15	20-40	7.4-8.4	0-5	0	0.0-2.0	0-1
	15-25	---	---	---	---	---	---
	25-60	---	---	---	---	---	---
98:							
Manastash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-20	30-40	6.6-8.4	0	0	0	0
	20-25	30-40	7.4-8.4	1-15	0	0.0-2.0	0-1
	25-35	---	---	---	---	---	---
	35-60	---	---	---	---	---	---
Meloza-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-21	15-30	6.6-7.8	0	0	0	0
	21-60	15-30	7.4-8.4	1-20	0	0.0-4.0	0
Durtash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-15	20-40	7.4-8.4	0-5	0	0.0-2.0	0-1
	15-25	---	---	---	---	---	---
	25-60	---	---	---	---	---	---
99:							
Manastash-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-16	30-40	6.6-8.4	0	0	0	0
	16-25	30-40	7.4-8.4	1-15	0	0.0-2.0	0-1
	25-35	---	---	---	---	---	---
	35-60	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
99:							
Selah-----	0-10	10-20	6.6-7.3	0	0	0	0
	10-14	10-20	7.4-7.8	0	0	0	0
	14-20	10-20	7.4-8.4	0	0	0	0
	20-27	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	27-37	---	---	---	---	---	---
	37-60	---	---	---	---	---	---
Gorst-----	0-6	10-20	6.6-7.8	0	0	0	0
	6-14	10-20	7.4-7.8	0	0	0.0-2.0	0
	14-24	---	---	---	---	---	---
	24-60	---	---	---	---	---	---
100:							
Marlic-----	0-6	10-20	6.6-7.8	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-15	20-30	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
Zen-----	0-12	10-20	6.1-7.8	0	0	0	0
	12-18	10-20	6.6-8.4	0	0	0	0
	18-25	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	25-29	---	---	---	---	---	---
Laric-----	0-3	10-20	6.6-7.8	---	---	---	---
	3-9	10-20	6.6-7.8	---	---	---	---
	9-13	---	---	---	---	---	---
101:							
Meloza-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-21	15-30	6.6-7.8	0	0	0	0
	21-60	15-30	7.4-8.4	1-20	0	0.0-4.0	0
Roza-----	0-3	25-40	7.4-7.8	0	0	0	0
	3-18	25-40	7.4-8.4	0	0	0	0
	18-60	25-40	7.4-8.4	5-20	0	0.0-2.0	0-2
102:							
Meloza-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-21	15-30	6.6-7.8	0	0	0	0
	21-60	15-30	7.4-8.4	1-20	0	0.0-4.0	0
Roza-----	0-3	25-40	7.4-7.8	0	0	0	0
	3-18	25-40	7.4-8.4	0	0	0	0
	18-60	25-40	7.4-8.4	5-20	0	0.0-2.0	0-2
103:							
Meloza-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-21	15-30	6.6-7.8	0	0	0	0
	21-60	15-30	7.4-8.4	1-20	0	0.0-4.0	0
Roza-----	0-3	25-40	7.4-7.8	0	0	0	0
	3-18	25-40	7.4-8.4	0	0	0	0
	18-60	25-40	7.4-8.4	5-20	0	0.0-2.0	0-2
104:							
Nack-----	0-6	10-20	7.9-8.4	0-5	0	0.0-2.0	1-5
	6-15	10-20	7.9-9.0	1-15	0	0.0-4.0	1-5
	15-60	10-20	7.4-8.4	0-5	0	0.0-2.0	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
104: Opnish-----	0-8	10-20	7.9-9.0	1-5	0	2.0-4.0	1-13
	8-13	10-20	7.9-9.0	5-15	0	0.0-4.0	1-13
	13-26	20-30	7.9-9.0	5-15	0	2.0-4.0	1-13
	26-60	20-30	7.4-9.0	5-15	0	2.0-4.0	1-13
105: Neppel-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-21	10-20	6.6-8.4	1-5	0	0.0-2.0	0
	21-25	5.0-10	8.5-9.0	5-20	0	0.0-2.0	0
	25-60	5.0-10	8.5-9.0	5-20	0	0.0-2.0	0
Scoon-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-14	10-20	7.4-8.4	0	0	0	0
	14-17	10-20	7.9-8.4	15-35	0	0.0-2.0	0-2
	17-27	---	---	---	---	---	---
	27-60	---	---	---	---	---	---
106: Nevo-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-7	15-25	6.6-7.8	0	0	0	0
	7-11	---	---	---	---	---	---
107: Nevo-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---
Fortyday-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-17	10-20	6.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---
108: Nevo very cobbly loam	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---
Nevo extremely gravelly sandy loam	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---
109: Nevo very cobbly loam	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---
Nevo extremely gravelly sandy loam	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---
110: Niben-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-18	20-30	6.6-7.8	0	0	0	0
	18-51	20-30	7.4-8.4	0-15	0	0.0-2.0	0
	51-60	20-30	7.4-8.4	1-15	0	0.0-2.0	0-2
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-7	15-25	6.6-7.3	0	0	0	0
	7-16	20-30	6.6-7.3	0	0	0	0
	16-20	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
110:							
Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-34	10-20	6.6-7.8	0	0	0	0
	34-45	10-20	6.6-7.8	0-10	0	0	0-5
	45-60	10-20	7.4-9.0	5-20	0	0.0-2.0	0-5
111:							
Norod-----	0-10	---	6.6-7.8	0	0	0	0
	10-28	10-20	6.6-7.8	0	0	0	0
	28-33	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	33-37	---	---	---	---	---	---
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
112:							
Norod-----	0-10	---	6.6-7.8	0	0	0	0
	10-28	10-20	6.6-7.8	0	0	0	0
	28-33	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	33-37	---	---	---	---	---	---
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
113:							
Norod-----	0-10	---	6.6-7.8	0	0	0	0
	10-28	10-20	6.6-7.8	0	0	0	0
	28-33	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	33-37	---	---	---	---	---	---
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
114:							
Norod-----	0-10	---	6.6-7.8	0	0	0	0
	10-28	10-20	6.6-7.8	0	0	0	0
	28-33	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	33-37	---	---	---	---	---	---
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-8.4	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
115:							
Norod-----	0-10	---	6.6-7.8	0	0	0	0
	10-28	10-20	6.6-7.8	0	0	0	0
	28-33	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	33-37	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
115:							
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-8.4	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
116:							
Norod-----	0-10	---	6.6-7.8	0	0	0	0
	10-28	10-20	6.6-7.8	0	0	0	0
	28-33	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	33-37	---	---	---	---	---	---
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-8.4	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
117:							
Norod-----	0-10	---	6.6-7.8	0	0	0	0
	10-28	10-20	6.6-7.8	0	0	0	0
	28-33	10-20	7.4-8.4	5-20	0	0.0-2.0	0
	33-37	---	---	---	---	---	---
Rubble land-----	0-60	---	---	0	0	0	0
118:							
Nosser-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-10	20-30	6.6-7.8	0	0	0	0
	10-18	20-30	6.6-7.8	0	0	0	0
	18-22	20-30	7.4-8.4	2-5	0	0	0
	22-26	---	---	---	---	---	---
Levnik-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-8	20-30	6.6-7.8	0	0	0	0
	8-13	20-30	6.6-7.8	0	0	0	0
	13-16	30-40	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
119:							
Nosser-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-10	20-30	6.6-7.8	0	0	0	0
	10-18	20-30	6.6-7.8	0	0	0	0
	18-22	20-30	7.4-8.4	2-5	0	0	0
	22-26	---	---	---	---	---	---
Levnik-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-8	20-30	6.6-7.8	0	0	0	0
	8-13	20-30	6.6-7.8	0	0	0	0
	13-16	30-40	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
120:							
Palerf-----	0-9	10-20	6.6-7.3	0	0	0	0
	9-27	15-25	6.6-8.4	0	0	0	0
	27-35	20-30	7.4-8.4	5-15	0	0.0-2.0	0
	35-39	---	---	---	---	---	---
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-8.4	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
121:							
Palerf-----	0-9	10-20	6.6-7.3	0	0	0	0
	9-27	15-25	6.6-8.4	0	0	0	0
	27-35	20-30	7.4-8.4	5-15	0	0.0-2.0	0
	35-39	---	---	---	---	---	---
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
122:							
Palexerolls-----	0-5	20-30	6.6-7.3	0	0	0	0
	5-21	30-40	6.6-7.8	0	0	0	0
	21-35	20-40	7.9-8.4	1-15	0	0.0-2.0	0-2
	35-39	---	---	---	---	---	---
Patron-----	0-15	---	6.6-7.3	0	0	0	0
	15-20	20-30	6.6-7.8	0	0	0	0
	20-44	20-35	6.6-7.8	0	0	0	0
	44-52	20-35	6.6-8.4	1-15	0	0.0-2.0	0-2
	52-56	---	---	---	---	---	---
123:							
Patron-----	0-15	10-20	6.6-7.8	0	0	0	0
	15-26	20-30	6.6-7.8	0	0	0	0
	26-30	30-40	6.6-7.8	0	0	0	0
	30-60	30-40	6.6-7.8	0	0	0	0
Camaspach-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
124:							
Prosser-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-20	10-20	7.4-8.4	0	0	0	0
	20-26	10-20	7.9-8.4	1-15	0	0.0-2.0	0
	26-30	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
125:							
Prosser-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-20	10-20	7.4-8.4	0	0	0	0
	20-26	10-20	7.9-8.4	1-15	0	0.0-2.0	0
	26-30	---	---	---	---	---	---
Nevo-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-8	15-25	6.6-7.8	0	0	0	0
	8-12	---	---	---	---	---	---
126:							
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-8.4	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
127:							
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-9.0	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
128:							
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-9.0	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-16	10-20	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
129:							
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-8.4	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
Palerf-----	0-9	10-20	6.6-7.3	0	0	0	0
	9-27	15-25	6.6-8.4	0	0	0	0
	27-35	20-30	7.4-8.4	5-15	0	0.0-2.0	0
	35-39	---	---	---	---	---	---
130:							
Ralock-----	0-4	---	6.6-7.8	0	0	0	0
	4-14	---	6.6-7.8	0	0	0	0
	14-27	10-20	6.6-7.8	0	0	0	0
	27-49	15-25	7.4-8.4	15-35	0	0.0-2.0	0
	49-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
Palerf-----	0-9	10-20	6.6-7.3	0	0	0	0
	9-27	15-25	6.6-8.4	0	0	0	0
	27-35	20-30	7.4-8.4	5-15	0	0.0-2.0	0
	35-39	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
131: Rock outcrop-----	0-60	---	---	---	---	---	---
132: Rollinger-----	0-11	---	6.6-7.8	0	0	0	0
	11-27	20-30	6.6-7.8	0	0	0	0
	27-48	15-30	7.4-8.4	0-5	0	0.0-2.0	0-2
	48-60	10-20	7.9-9.0	5-15	0	0.0-2.0	0-2
133: Rollinger-----	0-11	---	6.6-7.8	0	0	0	0
	11-27	20-30	6.6-7.8	0	0	0	0
	27-48	15-30	7.4-8.4	0-5	0	0.0-2.0	0-2
	48-60	10-20	7.9-9.0	5-15	0	0.0-2.0	0-2
134: Rollinger-----	0-11	---	6.6-7.8	0	0	0	0
	11-27	20-30	6.6-7.8	0	0	0	0
	27-48	15-30	7.4-8.4	0-5	0	0.0-2.0	0-2
	48-60	10-20	7.9-9.0	5-15	0	0.0-2.0	0-2
135: Rollinger-----	0-12	---	6.6-7.8	0	0	0	0
	12-28	20-30	6.6-7.8	0	0	0	0
	28-52	15-30	7.4-8.4	0-5	0	0.0-2.0	0-2
	52-60	10-20	7.9-9.0	5-15	0	0.0-2.0	0-2
136: Rollinger-----	0-18	---	6.6-7.8	0	0	0	0
	18-29	20-30	6.6-7.8	0	0	0	0
	29-60	15-30	7.4-8.4	0-5	0	0.0-2.0	0-2
137: Rubble land-----	0-60	---	---	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
138: Rubble land-----	0-60	---	---	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
Kiona-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-21	10-20	7.4-8.4	1-5	0	0	0
	21-60	10-20	7.9-8.4	1-5	0	0.0-2.0	0
139: Sagehill-----	0-4	10-15	6.6-7.8	0	0	0	0
	4-35	10-15	6.6-7.8	0	0	0	0
	35-50	10-15	7.4-9.0	1-20	0	0.0-2.0	0-2
	50-60	10-15	7.9-9.0	15-35	0	0.0-2.0	0-2
Burbank-----	0-5	10-15	7.4-7.8	0	0	0	0
	5-17	10-15	7.4-7.8	0	0	0	0
	17-60	5.0-10	7.4-8.4	1-15	0	0.0-2.0	0
Malaga-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-14	10-20	6.6-7.8	0	0	0	0
	14-22	10-20	6.6-7.8	0	0	0	0
	22-60	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
140: Scoon-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-14	10-20	7.4-8.4	0	0	0	0
	14-17	10-20	7.9-8.4	15-35	0	0.0-2.0	0-2
	17-27	---	---	---	---	---	---
	27-60	---	---	---	---	---	---
141: Selah-----	0-10	10-20	6.6-7.3	0	0	0	0
	10-14	10-20	7.4-7.8	0	0	0	0
	14-20	10-20	7.4-8.4	0	0	0	0
	20-27	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	27-37	---	---	---	---	---	---
	37-60	---	---	---	---	---	---
142: Selah-----	0-10	10-20	6.6-7.3	0	0	0	0
	10-14	10-20	7.4-7.8	0	0	0	0
	14-20	10-20	7.4-8.4	0	0	0	0
	20-27	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	27-37	---	---	---	---	---	---
	37-60	---	---	---	---	---	---
143: Selah-----	0-10	10-20	6.6-7.3	0	0	0	0
	10-14	10-20	7.4-7.8	0	0	0	0
	14-20	10-20	7.4-8.4	0	0	0	0
	20-27	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	27-37	---	---	---	---	---	---
	37-60	---	---	---	---	---	---
144: Selah-----	0-10	10-20	6.6-7.3	0	0	0	0
	10-14	10-20	7.4-7.8	0	0	0	0
	14-20	10-20	7.4-8.4	0	0	0	0
	20-27	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	27-37	---	---	---	---	---	---
	37-60	---	---	---	---	---	---
145: Selah-----	0-10	10-20	6.6-7.3	0	0	0	0
	10-14	10-20	7.4-7.8	0	0	0	0
	14-20	10-20	7.4-8.4	0	0	0	0
	20-27	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	27-37	---	---	---	---	---	---
	37-60	---	---	---	---	---	---
146: Sohappy-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-17	10-20	7.4-8.4	1-5	---	---	---
	17-41	10-20	7.9-9.0	5-20	---	0.0-2.0	---
	41-47	10-20	7.9-9.0	15-35	---	0.0-2.0	---
	47-51	---	---	---	---	---	---
Fortyday-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-17	10-20	6.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
147:							
Sohappy-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-17	10-20	7.4-8.4	1-5	---	---	---
	17-41	10-20	7.9-9.0	5-20	---	0.0-2.0	---
	41-47	10-20	7.9-9.0	15-35	---	0.0-2.0	---
	47-51	---	---	---	---	---	---
Fortyday-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-17	10-20	6.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---
148:							
Sohappy-----	0-4	10-20	6.6-7.3	---	---	---	---
	4-17	10-20	7.4-8.4	1-5	---	---	---
	17-41	10-20	7.9-9.0	5-20	---	0.0-2.0	---
	41-47	10-20	7.9-9.0	15-35	---	0.0-2.0	---
	47-51	---	---	---	---	---	---
Fortyday-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-17	10-20	6.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---
149:							
Starbuck-----	0-3	5.0-10	6.6-7.8	0	0	0	0
	3-16	5.0-10	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
150:							
Tanksel-----	0-4	---	6.6-7.8	0	0	0	0
	4-12	---	6.6-7.8	0	0	0	0
	12-22	15-25	6.6-7.8	0	0	0	0
	22-34	20-30	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
Patron-----	0-12	---	6.6-7.3	0	0	0	0
	12-35	20-30	6.6-7.8	0	0	0	0
	35-60	20-30	6.6-7.8	0-10	0	0	0
Camaspach-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
151:							
Tanksel-----	0-4	---	6.6-7.8	0	0	0	0
	4-12	---	6.6-7.8	0	0	0	0
	12-22	15-25	6.6-7.8	0	0	0	0
	22-34	20-30	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
Patron-----	0-12	---	6.6-7.3	0	0	0	0
	12-35	20-30	6.6-7.8	0	0	0	0
	35-60	20-30	6.6-7.8	0-10	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
151: Camaspatch-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
152: Tanksel-----	0-4	---	6.6-7.8	0	0	0	0
	4-12	---	6.6-7.8	0	0	0	0
	12-22	15-25	6.6-7.8	0	0	0	0
	22-34	20-30	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
Wockum-----	0-12	10-20	6.6-7.3	0	0	0	0
	12-40	10-20	6.6-7.8	0	0	0	0
	40-60	10-20	6.6-7.8	0	0	0.0-2.0	0
153: Tanksel-----	0-4	---	6.6-7.8	0	0	0	0
	4-12	---	6.6-7.8	0	0	0	0
	12-22	15-25	6.6-7.8	0	0	0	0
	22-34	20-30	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
Wockum-----	0-12	10-20	6.6-7.3	0	0	0	0
	12-40	10-20	6.6-7.8	0	0	0	0
	40-60	10-20	6.6-7.8	0	0	0.0-2.0	0
154: Tanksel-----	0-4	---	6.6-7.8	0	0	0	0
	4-12	---	6.6-7.8	0	0	0	0
	12-22	15-25	6.6-7.8	0	0	0	0
	22-34	20-30	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
Wockum-----	0-12	10-20	6.6-7.3	0	0	0	0
	12-40	10-20	6.6-7.8	0	0	0	0
	40-60	10-20	6.6-7.8	0	0	0.0-2.0	0
155: Terlan-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-15	20-30	6.6-8.4	0-15	0	0.0-2.0	0
	15-18	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	18-28	---	---	---	---	---	---
	28-60	---	---	---	---	---	---
156: Terlan-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-15	20-30	6.6-8.4	0-15	0	0.0-2.0	0
	15-18	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	18-28	---	---	---	---	---	---
	28-60	---	---	---	---	---	---
157: Terlan-----	0-9	10-20	6.6-7.8	0	0	0	0
	9-14	20-30	6.6-8.4	0-15	0	0.0-2.0	0
	14-17	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	17-27	---	---	---	---	---	---
	27-60	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
157:							
Durtash-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-9	20-30	6.6-7.8	0	0	0	0
	9-18	20-40	7.4-8.4	1-5	0	0.0-2.0	0
	18-28	---	---	---	---	---	---
	28-60	---	---	---	---	---	---
Selah-----	0-9	10-20	6.6-7.3	0	0	0	0
	9-14	10-20	7.4-7.8	0	0	0	0
	14-17	10-20	7.4-8.4	0	0	0	0
	17-25	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	25-35	---	---	---	---	---	---
	35-60	---	---	---	---	---	---
158:							
Terlan-----	0-9	10-20	6.6-7.8	0	0	0	0
	9-14	20-30	6.6-8.4	0-15	0	0.0-2.0	0
	14-17	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	17-27	---	---	---	---	---	---
	27-60	---	---	---	---	---	---
Durtash-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-9	20-30	6.6-7.8	0	0	0	0
	9-18	20-40	7.4-8.4	1-5	0	0.0-2.0	0
	18-28	---	---	---	---	---	---
	28-60	---	---	---	---	---	---
Selah-----	0-9	10-20	6.6-7.3	0	0	0	0
	9-14	10-20	7.4-7.8	0	0	0	0
	14-17	10-20	7.4-8.4	0	0	0	0
	17-25	20-30	7.9-8.4	5-15	0	0.0-2.0	0-2
	25-35	---	---	---	---	---	---
	35-60	---	---	---	---	---	---
159:							
Timmerman sandy loam	0-3	10-15	6.6-7.8	0	0	0	0
	3-16	10-15	6.6-7.8	0	0	0	0
	16-60	5.0-10	7.4-9.0	1-15	0	0.0-2.0	0
Timmerman loamy sand	0-3	10-15	6.6-7.8	0	0	0	0
	3-15	10-15	6.6-7.8	0	0	0	0
	15-60	5.0-10	7.4-9.0	1-15	0	0.0-2.0	0
160:							
Tronsen-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-18	15-25	6.6-7.3	0	0	0	0
	18-25	15-25	6.6-7.3	0	0	0	0
	25-60	15-25	6.6-7.8	0	0	0	0
161:							
Tronsen-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-18	15-25	6.6-7.3	0	0	0	0
	18-25	15-25	6.6-7.3	0	0	0	0
	25-60	15-25	6.6-7.8	0	0	0	0
162:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-14	20-30	6.6-7.3	0	0	0	0
	14-18	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
163:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
164:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
165:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-7	15-25	6.6-7.3	0	0	0	0
	7-13	20-30	6.6-7.3	0	0	0	0
	13-17	---	---	---	---	---	---
166:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-7	15-25	6.6-7.3	0	0	0	0
	7-13	20-30	6.6-7.3	0	0	0	0
	13-17	---	---	---	---	---	---
167:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Benwy-----	0-9	10-20	6.6-7.8	0	0	0	0
	9-14	10-20	6.6-7.8	0	0	0	0
	14-33	10-20	6.6-7.8	0	0	0	0
	33-45	10-20	7.4-9.0	5-20	0	0.0-2.0	0-2
	45-55	---	---	---	---	---	---
	55-60	---	---	---	---	---	---
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---
168:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Benwy-----	0-9	10-20	6.6-7.8	0	0	0	0
	9-14	10-20	6.6-7.8	0	0	0	0
	14-33	10-20	6.6-7.8	0	0	0	0
	33-45	10-20	7.4-9.0	5-20	0	0.0-2.0	0-2
	45-55	---	---	---	---	---	---
	55-60	---	---	---	---	---	---
Argabak-----	0-2	10-20	6.6-7.8	0	0	0	0
	2-6	10-20	6.6-7.8	0	0	0	0
	6-10	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
169:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	10-20	6.6-7.3	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-24	20-30	6.6-7.8	0	0	0	0
	24-28	---	---	---	---	---	---
170:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	10-20	6.6-7.3	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-24	20-30	6.6-7.8	0	0	0	0
	24-28	---	---	---	---	---	---
171:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	10-20	6.6-7.3	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-24	20-30	6.6-7.8	0	0	0	0
	24-28	---	---	---	---	---	---
172:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	10-20	6.6-7.3	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-24	20-30	6.6-7.8	0	0	0	0
	24-28	---	---	---	---	---	---
Rubble land-----	0-60	---	---	0	0	0	0
173:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-7	15-25	6.6-7.3	0	0	0	0
	7-16	20-30	6.6-7.3	0	0	0	0
	16-20	---	---	---	---	---	---
Niben-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-21	20-30	6.6-7.8	0	0	0	0
	21-53	20-30	7.4-8.4	0-15	0	0.0-2.0	0
	53-60	20-30	7.4-8.4	1-15	0	0.0-2.0	0-2

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
173:							
Clerf-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	10-20	6.6-7.3	0	0	0	0
	8-14	20-30	6.6-7.8	0	0	0	0
	14-26	20-30	6.6-7.8	0	0	0	0
	26-28	---	---	---	---	---	---
174:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-17	20-30	6.6-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
Vantage, thin-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-7	15-25	6.6-7.3	0	0	0	0
	7-13	20-30	6.6-7.3	0	0	0	0
	13-17	---	---	---	---	---	---
175:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-9	15-25	6.6-7.3	0	0	0	0
	9-16	20-30	6.6-7.3	0	0	0	0
	16-20	---	---	---	---	---	---
Vantage, thin-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	15-25	6.6-7.3	0	0	0	0
	6-14	20-30	6.6-7.3	0	0	0	0
	14-18	---	---	---	---	---	---
176:							
Vantage-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-9	15-25	6.6-7.3	0	0	0	0
	9-16	20-30	6.6-7.3	0	0	0	0
	16-20	---	---	---	---	---	---
Vantage, thin-----	0-3	10-20	6.6-7.3	0	0	0	0
	3-6	15-25	6.6-7.3	0	0	0	0
	6-14	20-30	6.6-7.3	0	0	0	0
	14-18	---	---	---	---	---	---
177:							
Wanapum-----	0-6	10-20	6.6-7.8	0	0	0	0
	6-13	10-20	6.6-8.4	0	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
	23-60	---	---	---	---	---	---
178:							
Wanapum loam-----	0-6	10-20	6.6-7.8	0	0	0	0
	6-13	10-20	6.6-8.4	---	---	0.0-2.0	---
	13-23	---	---	---	---	---	---
	23-60	---	---	---	---	---	---
Wanapum cobbly loam--	0-6	10-20	6.6-7.8	0	0	0	0
	6-13	10-20	6.6-8.4	0	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
	23-60	---	---	---	---	---	---
179:							
Wanapum loam-----	0-6	10-20	6.6-7.8	0	0	0	0
	6-13	10-20	6.6-8.4	---	---	0.0-2.0	---
	13-23	---	---	---	---	---	---
	23-60	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
179:							
Wanapum cobbly loam--	0-6	10-20	6.6-7.8	0	0	0	0
	6-13	10-20	6.6-8.4	0	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
	23-60	---	---	---	---	---	---
180:							
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
181:							
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
182:							
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
Tronsen-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-18	15-25	6.6-7.3	0	0	0	0
	18-25	15-25	6.6-7.3	0	0	0	0
	25-60	15-25	6.6-7.8	0	0	0	0
Camaspach-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
183:							
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
Tronsen-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-18	15-25	6.6-7.3	0	0	0	0
	18-25	15-25	6.6-7.3	0	0	0	0
	25-60	15-25	6.6-7.8	0	0	0	0
Camaspach-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
184:							
Whiskeydick-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-30	20-30	6.6-7.8	0	0	0	0
	30-34	---	---	---	---	---	---
Tronsen-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-18	15-25	6.6-7.3	0	0	0	0
	18-25	15-25	6.6-7.3	0	0	0	0
	25-60	15-25	6.6-7.8	0	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
184: Camaspach-----	0-2	10-20	6.6-7.3	0	0	0	0
	2-12	20-30	6.6-7.3	0	0	0	0
	12-19	20-30	6.6-7.3	0	0	0	0
	19-23	---	---	---	---	---	---
185: Winchester-----	0-6	5.0-10	6.6-7.8	0	0	0	0
	6-17	5.0-10	6.6-7.8	0	0	0	0
	17-60	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
Sagehill-----	0-4	10-15	6.6-7.8	0	0	0	0
	4-35	10-15	6.6-7.8	0	0	0	0
	35-50	10-15	7.4-9.0	1-20	0	0.0-2.0	0-2
	50-60	10-15	7.9-9.0	15-35	0	0.0-2.0	0-2
Burbank-----	0-5	10-15	7.4-7.8	0	0	0	0
	5-17	10-15	7.4-7.8	0	0	0	0
	17-60	5.0-10	7.4-8.4	1-15	0	0.0-2.0	0
186: Wipple-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-20	20-30	7.4-7.8	0	0	0	0
	20-26	20-30	7.4-8.4	1-5	0	0.0-2.0	0
	26-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
187: Wipple-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-22	20-30	7.4-7.8	0	0	0	0
	22-25	20-30	7.4-8.4	1-5	0	0.0-2.0	0
	25-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
188: Wipple-----	0-4	10-20	6.6-7.3	0	0	0	0
	4-19	20-30	7.4-7.8	0	0	0	0
	19-23	20-30	7.4-8.4	1-5	0	0.0-2.0	0
	23-60	15-25	7.4-8.4	1-5	0	0.0-2.0	0
189: Wockum-----	0-12	10-20	6.6-7.3	0	0	0	0
	12-40	10-20	6.6-7.8	0	0	0	0
	40-60	10-20	6.6-7.8	0	0	0.0-2.0	0
190: Wockum-----	0-12	10-20	6.6-7.3	0	0	0	0
	12-40	10-20	6.6-7.8	0	0	0	0
	40-60	10-20	6.6-7.8	0	0	0.0-2.0	0
191: Wockum-----	0-12	10-20	6.6-7.3	0	0	0	0
	12-40	10-20	6.6-7.8	0	0	0	0
	40-60	10-20	6.6-7.8	0	0	0.0-2.0	0
Blint-----	0-6	5.0-10	6.6-7.3	0	0	0	0
	6-14	5.0-10	6.6-7.3	0	0	0	0
	14-22	10-15	6.6-7.3	0	0	0	0
	22-37	10-15	6.6-7.3	1-5	0	0	0
	37-40	---	---	---	---	---	---
192: Wockum-----	0-12	10-20	6.6-7.3	0	0	0	0
	12-40	10-20	6.6-7.8	0	0	0	0
	40-60	10-20	6.6-7.8	0	0	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
192:							
Blint-----	0-6	5.0-10	6.6-7.3	0	0	0	0
	6-14	5.0-10	6.6-7.3	0	0	0	0
	14-22	10-15	6.6-7.3	0	0	0	0
	22-37	10-15	6.6-7.3	1-5	0	0	0
	37-40	---	---	---	---	---	---
Windry-----	0-3	10-20	6.6-7.8	0	0	0	0
	3-7	10-20	6.6-7.8	0	0	0	0
	7-15	10-20	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
193:							
Zen-----	0-10	10-20	6.1-7.8	0	0	0	0
	10-22	10-20	6.6-8.4	0	0	0	0
	22-27	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	27-31	---	---	---	---	---	---
194:							
Zen-----	0-10	10-20	6.1-7.8	0	0	0	0
	10-22	10-20	6.6-8.4	0	0	0	0
	22-27	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	27-31	---	---	---	---	---	---
195:							
Zen-----	0-10	10-20	6.1-7.8	0	0	0	0
	10-22	10-20	6.6-8.4	0	0	0	0
	22-27	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	27-31	---	---	---	---	---	---
196:							
Zen-----	0-10	10-20	6.1-7.8	0	0	0	0
	10-22	10-20	6.6-8.4	0	0	0	0
	22-27	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	27-31	---	---	---	---	---	---
Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-14	10-20	6.6-7.8	0	0	0	0
	14-33	10-20	6.6-7.8	0	0	0	0
	33-45	10-20	7.4-9.0	5-20	0	0.0-2.0	0-2
	45-49	---	---	---	---	---	---
Laric-----	0-3	10-20	6.6-7.8	---	---	---	---
	3-8	10-20	6.6-7.8	---	---	---	---
	8-12	---	---	---	---	---	---
197:							
Zen-----	0-10	10-20	6.1-7.8	0	0	0	0
	10-22	10-20	6.6-8.4	0	0	0	0
	22-27	10-20	7.4-9.0	5-15	0	0.0-2.0	0
	27-31	---	---	---	---	---	---
Marlic-----	0-6	10-20	6.6-7.8	0	0	0	0
	6-12	20-30	6.6-7.8	0	0	0	0
	12-15	20-30	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
Laric-----	0-3	10-20	6.6-7.8	---	---	---	---
	3-8	10-20	6.6-7.8	---	---	---	---
	8-12	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
198:							
Torrifluvents, very cobbley-----	0-2	5.0-10	7.4-8.4	0	0	0.0-2.0	0
	2-60	5.0-8.0	7.4-8.4	0	0	0.0-2.0	0
Torrifluvents, gravelly-----	0-2	5.0-10	7.4-8.4	0	0	0.0-2.0	0
	2-60	5.0-8.0	7.4-8.4	0	0	0.0-2.0	0
199:							
Haploxerolls sandy loam-----	0-14	10-15	7.9-9.0	5-15	0	0.0-4.0	0-5
	14-60	10-20	7.4-8.4	1-5	0	0.0-2.0	0-5
Haploxerolls silt loam-----	0-14	10-20	7.9-9.0	5-15	0	0.0-4.0	0-5
	14-60	10-20	7.4-8.4	1-5	0	0.0-2.0	0-5
200:							
Malaga, cobbley-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-15	10-20	6.6-7.8	0	0	0	0
	15-60	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
Malaga, stony-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-9	10-20	6.6-7.8	0	0	0	0
	9-15	10-20	6.6-7.8	0	0	0	0
	15-60	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
201:							
Semal, cobbley-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-26	5.0-20	6.6-7.8	0	0	0	0
	26-55	---	---	---	---	---	---
	55-60	5.0-10	7.4-8.4	1-15	0	0.0-2.0	0-1
Semal, very cobbley---	0-5	10-20	6.6-7.8	0	0	0	0
	5-14	10-20	6.6-7.8	0	0	0	0
	14-27	5.0-20	6.6-7.8	0	0	0	0
	27-55	---	---	---	---	---	---
	55-60	5.0-10	7.4-8.4	1-15	0	0.0-2.0	0-1
Semal, stony-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-13	10-20	6.6-7.8	0	0	0	0
	13-22	5.0-20	6.6-7.8	0	0	0	0
	22-55	---	---	---	---	---	---
	55-60	5.0-10	7.4-8.4	1-15	0	0.0-2.0	0-1
202:							
Water.							
203:							
Pits-----	0-60	---	---	---	---	0	---
204:							
Dam.							
205:							
Arents-----	0-60	1.0-6.0	7.4-8.4	1-5	0	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
206:							
Burbank-----	0-4	1.0-6.0	7.4-8.4	0	0	0	0
	4-23	1.0-6.0	7.4-8.4	0	0	0	0
	23-60	1.0-6.0	7.4-8.4	1-5	0	0.0-2.0	0
207:							
Rock Creek-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-10	15-25	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
208:							
Kiona-----	0-5	5.0-10	7.4-8.4	0	0	0	0
	5-14	5.0-10	7.4-8.4	0	0	0	0
	14-60	5.0-10	7.4-8.4	20-35	0	0.0-2.0	0
209:							
Licksillet-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	15-25	6.6-8.4	0-5	0	0.0-2.0	0
	20-24	---	---	---	---	---	---
210:							
Starbuck-----	0-6	5.0-10	6.6-7.8	0	0	0	0
	6-16	5.0-10	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
211:							
Starbuck-----	0-6	5.0-10	6.6-7.8	0	0	0	0
	6-16	5.0-10	6.6-7.8	0	0	0	0
	16-20	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
212:							
Willis-----	0-6	2.0-5.0	6.6-7.8	0	0	0	0
	6-22	3.0-5.0	7.4-8.4	0	0	0	0
	22-34	2.0-4.0	7.9-9.0	1-10	0	0.0-2.0	0
	34-38	---	---	---	---	---	---
	38-42	---	---	---	---	---	---
213:							
Willis-----	0-6	2.0-5.0	6.6-7.8	0	0	0	0
	6-22	3.0-5.0	7.4-8.4	0	0	0	0
	22-34	2.0-4.0	7.9-9.0	1-10	0	0.0-2.0	0
	34-38	---	---	---	---	---	---
	38-42	---	---	---	---	---	---
214:							
Willis-----	0-6	2.0-5.0	6.6-7.8	0	0	0	0
	6-22	3.0-5.0	7.4-8.4	0	0	0	0
	22-34	2.0-4.0	7.9-9.0	1-10	0	0.0-2.0	0
	34-38	---	---	---	---	---	---
	38-42	---	---	---	---	---	---
215:							
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---

Table 17.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		Flooding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
1: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
2: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
3: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
4: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
5: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
6: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
7: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
8: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
9: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
10: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
11: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
11: Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
12: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
13: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
Windry-----	D	Jan-Dec	---	---	---	---	None	---	None
14: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
Grinrod-----	C	Jan-Dec	---	---	---	---	None	---	None
15: Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
Grinrod-----	C	Jan-Dec	---	---	---	---	None	---	None
16: Argids-----	B	Jan-Dec	---	---	---	---	None	---	None
17: Argids-----	B	Jan-Dec	---	---	---	---	None	---	None
18: Argixerolls-----	C	Jan-Dec	---	---	---	---	None	---	None
Durixerolls-----	C	Jan-Dec	---	---	---	---	None	---	None
19: Argixerolls-----	C	Jan-Dec	---	---	---	---	None	---	None
Durixerolls-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
20: Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None
21: Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None
22: Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None
23: Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None
Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
24: Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None
Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
25: Blint-----	B	Jan-Dec	---	---	---	---	None	---	None
26: Blint-----	B	Jan-Dec	---	---	---	---	None	---	None
27: Blint-----	B	Jan-Dec	---	---	---	---	None	---	None
Windry-----	D	Jan-Dec	---	---	---	---	None	---	None
28: Brehm-----	C	Jan-Dec	---	---	---	---	None	---	None
29: Brehm-----	C	Jan-Dec	---	---	---	---	None	---	None
Gorskel-----	D	Jan-Dec	---	---	---	---	None	---	None
Gorst-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
30: Caliralls-----	B	Jan-Dec	---	---	---	---	None	---	None
31: Caliralls-----	B	Jan-Dec	---	---	---	---	None	---	None
32: Caliralls-----	B	Jan-Dec	---	---	---	---	None	---	None
Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None
33: Caliralls-----	B	Jan-Dec	---	---	---	---	None	---	None
Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None
34: Caliralls-----	B	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
35: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
36: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
37: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
38: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
39: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
Colockum-----	B	Jan-Dec	---	---	---	---	None	---	None
40: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
Tanksel-----	C	Jan-Dec	---	---	---	---	None	---	None
41: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
41: Tanksel-----	C	Jan-Dec	---	---	---	---	None	---	None
Lainand-----	B	Jan-Dec	---	---	---	---	None	---	None
42: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
43: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
44: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
45: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
46: Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None
47: Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None
48: Colockum-----	B	Jan-Dec	---	---	---	---	None	---	None
49: Colockum-----	B	Jan-Dec	---	---	---	---	None	---	None
50: Colockum-----	B	Jan-Dec	---	---	---	---	None	---	None
51: Colockum-----	B	Jan-Dec	---	---	---	---	None	---	None
Tronsen-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
52: Disage-----	D	Jan-Dec	---	---	---	---	None	---	None
53: Disage-----	D	Jan-Dec	---	---	---	---	None	---	None
54: Disage-----	D	Jan-Dec	---	---	---	---	None	---	None
55: Disage-----	D	Jan-Dec	---	---	---	---	None	---	None
Clenage-----	C	Jan-Dec	---	---	---	---	None	---	None
56: Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
57: Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
58: Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
Disage-----	D	Jan-Dec	---	---	---	---	None	---	None
Kiona-----	B	Jan-Dec	---	---	---	---	None	---	None
59: Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
60: Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
61: Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
Schappy-----	B	Jan-Dec	---	---	---	---	None	---	None
Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
62: Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
Schappy-----	B	Jan-Dec	---	---	---	---	None	---	None
Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
63: Drysel-----	C	Jan-Dec	---	---	---	---	None	---	None
64: Drysel-----	C	Jan-Dec	---	---	---	---	None	---	None
65: Durtash-----	D	Jan-Dec	---	---	---	---	None	---	None
66: Esquatzel-----	B	January	---	---	---	---	None	Brief	Occasional
		February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
67: Esquatzel-----	B	Jan-Dec	---	---	---	---	None	---	None
68: Esquatzel-----	B	Jan-Dec	---	---	---	---	None	---	None
Aquolls-----	C	January	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		February	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		March	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	None	Brief	Frequent
Weirman-----	A	January	---	---	---	---	None	Brief	Occasional
		February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
69: Esquatzel-----	B	Jan-Dec	---	---	---	---	None	---	None
Weirman fine sandy loam---	A	January	---	---	---	---	None	Brief	Occasional
		February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
Weirman very cobbly sandy loam-----	A	January	---	---	---	---	None	Brief	Occasional
		February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
70: Finley sandy loam-----	B	Jan-Dec	---	---	---	---	None	---	None
Finley cobbly sandy loam--	B	Jan-Dec	---	---	---	---	None	---	None
71: Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
Nevo-----	D	Jan-Dec	---	---	---	---	None	---	None
72: Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
Nevo-----	D	Jan-Dec	---	---	---	---	None	---	None
73: Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
Drino-----	C	Jan-Dec	---	---	---	---	None	---	None
Sohappy-----	B	Jan-Dec	---	---	---	---	None	---	None
74: Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
Nevo-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
74: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
75: Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
76: Frint-----	C	Jan-Dec	---	---	---	---	None	---	None
Gidwin-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
77: Frint-----	C	Jan-Dec	---	---	---	---	None	---	None
Hogranch-----	B	Jan-Dec	---	---	---	---	None	---	None
78: Frint-----	C	Jan-Dec	---	---	---	---	None	---	None
Hogranch-----	B	Jan-Dec	---	---	---	---	None	---	None
Gidwin-----	D	Jan-Dec	---	---	---	---	None	---	None
79: Gorskel silt loam-----	D	Jan-Dec	---	---	---	---	None	---	None
Gorskel cobbly loam-----	D	Jan-Dec	---	---	---	---	None	---	None
80: Gorst-----	D	Jan-Dec	---	---	---	---	None	---	None
81: Grinrod-----	C	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
82: Grinrod-----	C	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
83: Haploxerolls-----	B	Jan-Dec	---	---	---	---	None	---	None
Orthents-----	C	January	---	---	---	---	None	Brief	Occasional
		February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
Aquolls-----	C	January	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		February	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		March	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	None	Brief	Frequent
84: Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
85: Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
86: Kiona-----	B	Jan-Dec	---	---	---	---	None	---	None
87: Kiona-----	B	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
88: Lainand-----	B	Jan-Dec	---	---	---	---	None	---	None
Tanksel-----	C	Jan-Dec	---	---	---	---	None	---	None
89: Laric-----	D	Jan-Dec	---	---	---	---	None	---	None
90: Laric-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
90: Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
91: Levnik-----	D	Jan-Dec	---	---	---	---	None	---	None
Nosser-----	D	Jan-Dec	---	---	---	---	None	---	None
Nevo-----	D	Jan-Dec	---	---	---	---	None	---	None
92: Malaga-----	A	Jan-Dec	---	---	---	---	None	---	None
93: Malaga-----	A	Jan-Dec	---	---	---	---	None	---	None
94: Manastash-----	C	Jan-Dec	---	---	---	---	None	---	None
95: Manastash-----	C	Jan-Dec	---	---	---	---	None	---	None
96: Manastash-----	C	Jan-Dec	---	---	---	---	None	---	None
Durtash-----	D	Jan-Dec	---	---	---	---	None	---	None
97: Manastash-----	C	Jan-Dec	---	---	---	---	None	---	None
Durtash-----	D	Jan-Dec	---	---	---	---	None	---	None
98: Manastash-----	C	Jan-Dec	---	---	---	---	None	---	None
Meloza-----	C	Jan-Dec	---	---	---	---	None	---	None
Durtash-----	D	Jan-Dec	---	---	---	---	None	---	None
99: Manastash-----	C	Jan-Dec	---	---	---	---	None	---	None
Selah-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
99: Gorst-----	D	Jan-Dec	---	---	---	---	None	---	None
100: Marlic-----	D	Jan-Dec	---	---	---	---	None	---	None
Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
Laric-----	D	Jan-Dec	---	---	---	---	None	---	None
101: Meloza-----	C	Jan-Dec	---	---	---	---	None	---	None
Roza-----	C	Jan-Dec	---	---	---	---	None	---	None
102: Meloza-----	C	Jan-Dec	---	---	---	---	None	---	None
Roza-----	C	Jan-Dec	---	---	---	---	None	---	None
103: Meloza-----	C	Jan-Dec	---	---	---	---	None	---	None
Roza-----	C	Jan-Dec	---	---	---	---	None	---	None
104: Nack-----	C	May	1.5-3.5	>6.0	---	---	None	---	None
		June	1.5-3.5	>6.0	---	---	None	---	None
		July	1.5-3.5	>6.0	---	---	None	---	None
		August	1.5-3.5	>6.0	---	---	None	---	None
		September	1.5-3.5	>6.0	---	---	None	---	None
		October	1.5-3.5	>6.0	---	---	None	---	None
Opnish-----	C	May	2.0-3.5	>6.0	---	---	None	---	None
		June	2.0-3.5	>6.0	---	---	None	---	None
		July	2.0-3.5	>6.0	---	---	None	---	None
		August	2.0-3.5	>6.0	---	---	None	---	None
		September	2.0-3.5	>6.0	---	---	None	---	None
		October	2.0-3.5	>6.0	---	---	None	---	None
105: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
Scoon-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
106: Nevo-----	D	Jan-Dec	---	---	---	---	None	---	None
107: Nevo-----	D	Jan-Dec	---	---	---	---	None	---	None
Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
108: Nevo very cobbly loam-----	D	Jan-Dec	---	---	---	---	None	---	None
Nevo extremely gravelly sandy loam-----	D	Jan-Dec	---	---	---	---	None	---	None
109: Nevo very cobbly loam-----	D	Jan-Dec	---	---	---	---	None	---	None
Nevo extremely gravelly sandy loam-----	D	Jan-Dec	---	---	---	---	None	---	None
110: Niben-----	B	Jan-Dec	---	---	---	---	None	---	None
Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None
111: Norod-----	C	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
112: Norod-----	C	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
113: Norod-----	C	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
114: Norod-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
114: Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
115: Norod-----	C	Jan-Dec	---	---	---	---	None	---	None
Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
116: Norod-----	C	Jan-Dec	---	---	---	---	None	---	None
Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
117: Norod-----	C	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
118: Nosser-----	D	Jan-Dec	---	---	---	---	None	---	None
Levnik-----	D	Jan-Dec	---	---	---	---	None	---	None
119: Nosser-----	D	Jan-Dec	---	---	---	---	None	---	None
Levnik-----	D	Jan-Dec	---	---	---	---	None	---	None
120: Palerf-----	C	Jan-Dec	---	---	---	---	None	---	None
Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
121: Palerf-----	C	Jan-Dec	---	---	---	---	None	---	None
Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
122: Palexerolls-----	C	Jan-Dec	---	---	---	---	None	---	None
Patron-----	B	Jan-Dec	---	---	---	---	None	---	None
123: Patron-----	C	Jan-Dec	---	---	---	---	None	---	None
Camaspach-----	D	Jan-Dec	---	---	---	---	None	---	None
124: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
125: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
Nevo-----	D	Jan-Dec	---	---	---	---	None	---	None
126: Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
127: Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
128: Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
Horseflat-----	D	Jan-Dec	---	---	---	---	None	---	None
129: Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
Palerf-----	C	Jan-Dec	---	---	---	---	None	---	None
130: Ralock-----	B	Jan-Dec	---	---	---	---	None	---	None
Palerf-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
131: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
132: Rollinger-----	C	Jan-Dec	---	---	---	---	None	---	None
133: Rollinger-----	C	Jan-Dec	---	---	---	---	None	---	None
134: Rollinger-----	C	Jan-Dec	---	---	---	---	None	---	None
135: Rollinger-----	C	Jan-Dec	---	---	---	---	None	---	None
136: Rollinger-----	C	Jan-Dec	---	---	---	---	None	---	None
137: Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
138: Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Kiona-----	B	Jan-Dec	---	---	---	---	None	---	None
139: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
Burbank-----	A	Jan-Dec	---	---	---	---	None	---	None
Malaga-----	A	Jan-Dec	---	---	---	---	None	---	None
140: Scoon-----	D	Jan-Dec	---	---	---	---	None	---	None
141: Selah-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
142: Selah-----	C	Jan-Dec	---	---	---	---	None	---	None
143: Selah-----	C	Jan-Dec	---	---	---	---	None	---	None
144: Selah-----	C	Jan-Dec	---	---	---	---	None	---	None
145: Selah-----	C	Jan-Dec	---	---	---	---	None	---	None
146: Sohappy-----	B	Jan-Dec	---	---	---	---	None	---	None
Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
147: Sohappy-----	B	Jan-Dec	---	---	---	---	None	---	None
Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
148: Sohappy-----	B	Jan-Dec	---	---	---	---	None	---	None
Fortyday-----	D	Jan-Dec	---	---	---	---	None	---	None
149: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
150: Tanksel-----	C	Jan-Dec	---	---	---	---	None	---	None
Patron-----	B	Jan-Dec	---	---	---	---	None	---	None
Camaspach-----	D	Jan-Dec	---	---	---	---	None	---	None
151: Tanksel-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
151: Patron-----	B	Jan-Dec	---	---	---	---	None	---	None
Camaspach-----	D	Jan-Dec	---	---	---	---	None	---	None
152: Tankssel-----	C	Jan-Dec	---	---	---	---	None	---	None
Wockum-----	B	Jan-Dec	---	---	---	---	None	---	None
153: Tankssel-----	C	Jan-Dec	---	---	---	---	None	---	None
Wockum-----	B	Jan-Dec	---	---	---	---	None	---	None
154: Tankssel-----	C	Jan-Dec	---	---	---	---	None	---	None
Wockum-----	B	Jan-Dec	---	---	---	---	None	---	None
155: Terlan-----	D	Jan-Dec	---	---	---	---	None	---	None
156: Terlan-----	D	Jan-Dec	---	---	---	---	None	---	None
157: Terlan-----	D	Jan-Dec	---	---	---	---	None	---	None
Durtash-----	D	Jan-Dec	---	---	---	---	None	---	None
Selah-----	C	Jan-Dec	---	---	---	---	None	---	None
158: Terlan-----	D	Jan-Dec	---	---	---	---	None	---	None
Durtash-----	D	Jan-Dec	---	---	---	---	None	---	None
Selah-----	C	Jan-Dec	---	---	---	---	None	---	None
159: Timmerman sandy loam-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
159: Timmerman loamy sand-----	B	Jan-Dec	---	---	---	---	None	---	None
160: Tronsen-----	C	Jan-Dec	---	---	---	---	None	---	None
161: Tronsen-----	C	Jan-Dec	---	---	---	---	None	---	None
162: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
163: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
164: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
165: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
166: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
167: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None
Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
168: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None
Argabak-----	D	Jan-Dec	---	---	---	---	None	---	None
169: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
170: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None
171: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None
172: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
173: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Niben-----	B	Jan-Dec	---	---	---	---	None	---	None
Clerf-----	C	Jan-Dec	---	---	---	---	None	---	None
174: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Vantage, thin-----	D	Jan-Dec	---	---	---	---	None	---	None
175: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Vantage, thin-----	D	Jan-Dec	---	---	---	---	None	---	None
176: Vantage-----	D	Jan-Dec	---	---	---	---	None	---	None
Vantage, thin-----	D	Jan-Dec	---	---	---	---	None	---	None
177: Wanapum-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
178:			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
Wanapum loam-----	D	Jan-Dec	---	---	---	---	None	---	None
Wanapum cobbly loam-----	D	Jan-Dec	---	---	---	---	None	---	None
179:									
Wanapum loam-----	D	Jan-Dec	---	---	---	---	None	---	None
Wanapum cobbly loam-----	D	Jan-Dec	---	---	---	---	None	---	None
180:									
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
181:									
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
182:									
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
Tronsen-----	C	Jan-Dec	---	---	---	---	None	---	None
Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
183:									
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
Tronsen-----	C	Jan-Dec	---	---	---	---	None	---	None
Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
184:									
Whiskeydick-----	C	Jan-Dec	---	---	---	---	None	---	None
Tronsen-----	C	Jan-Dec	---	---	---	---	None	---	None
Camaspatch-----	D	Jan-Dec	---	---	---	---	None	---	None
185:									
Winchester-----	A	Jan-Dec	---	---	---	---	None	---	None
Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
185: Burbank-----	A	Jan-Dec	---	---	---	---	None	---	None
186: Wipple-----	C	Jan-Dec	---	---	---	---	None	---	None
187: Wipple-----	C	Jan-Dec	---	---	---	---	None	---	None
188: Wipple-----	C	Jan-Dec	---	---	---	---	None	---	None
189: Wockum-----	B	Jan-Dec	---	---	---	---	None	---	None
190: Wockum-----	B	Jan-Dec	---	---	---	---	None	---	None
191: Wockum-----	B	Jan-Dec	---	---	---	---	None	---	None
Blint-----	B	Jan-Dec	---	---	---	---	None	---	None
192: Wockum-----	B	Jan-Dec	---	---	---	---	None	---	None
Blint-----	B	Jan-Dec	---	---	---	---	None	---	None
Windry-----	D	Jan-Dec	---	---	---	---	None	---	None
193: Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
194: Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
195: Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
196: Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
Benwy-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
196: Laric-----	D	Jan-Dec	---	---	---	---	None	---	None
197: Zen-----	C	Jan-Dec	---	---	---	---	None	---	None
Marlic-----	D	Jan-Dec	---	---	---	---	None	---	None
Laric-----	D	Jan-Dec	---	---	---	---	None	---	None
198: Torrifluents, very cobbly	B	February	---	---	---	---	None	Brief	Frequent
		March	---	---	---	---	None	Brief	Frequent
		April	---	---	---	---	None	Brief	Frequent
		May	---	---	---	---	None	Brief	Frequent
Torrifluents, gravelly---	B	February	---	---	---	---	None	Brief	Frequent
		March	---	---	---	---	None	Brief	Frequent
		April	---	---	---	---	None	Brief	Frequent
		May	---	---	---	---	None	Brief	Frequent
199: Haploxerolls sandy loam---	B	Jan-Dec	---	---	---	---	None	---	Rare
Haploxerolls silt loam----	B	Jan-Dec	---	---	---	---	None	---	Rare
200: Malaga, cobbly-----	A	Jan-Dec	---	---	---	---	None	---	None
Malaga, stony-----	A	Jan-Dec	---	---	---	---	None	---	None
201: Semal, cobbly-----	B	Jan-Dec	---	---	---	---	None	---	None
Semal, very cobbly-----	B	Jan-Dec	---	---	---	---	None	---	None
Semal, stony-----	B	Jan-Dec	---	---	---	---	None	---	None
202: Water.									
203: Pits-----	---	Jan-Dec	---	---	---	---	None	---	None
204: Dam-----	---	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
205: Arents-----	---	Jan-Dec	---	---	---	---	None	---	None
206: Burbank-----	A	Jan-Dec	---	---	---	---	None	---	None
207: Rock Creek-----	D	Jan-Dec	---	---	---	---	None	---	None
208: Kiona-----	B	Jan-Dec	---	---	---	---	None	---	None
209: Lickskillet-----	D	Jan-Dec	---	---	---	---	None	---	None
210: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
211: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
212: Willis-----	C	Jan-Dec	---	---	---	---	None	---	None
213: Willis-----	C	Jan-Dec	---	---	---	---	None	---	None
214: Willis-----	C	Jan-Dec	---	---	---	---	None	---	None
215: Bakeoven-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 18.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
1: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
2: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
3: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
4: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
5: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
6: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
7: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
8: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
9: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
10: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
11: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
12: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
13: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Windry-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
14: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
Grinrod-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
15: Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
Grinrod-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
16: Argids-----	---	---	---	---	Low	High	Low
17: Argids-----	---	---	---	---	Low	High	Low
18: Argixerolls-----	---	---	---	---	Low	High	Low
Durixerolls-----	Duripan-----	10-40	4-17	Indurated-----	Moderate	High	Low
19: Argixerolls-----	---	---	---	---	Low	High	Low
Durixerolls-----	Duripan-----	10-40	4-17	Indurated-----	Moderate	High	Low
20: Benwy-----	---	---	---	---	Moderate	High	Low
21: Benwy-----	Duripan-----	40-60	4-17	Indurated-----	Moderate	High	Low
22: Benwy-----	Duripan-----	40-60	4-17	Indurated-----	Moderate	High	Low
23: Benwy-----	Duripan-----	40-60	4-17	Indurated-----	Moderate	High	Low
Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
24: Benwy-----	Duripan-----	40-60	4-17	Indurated-----	Moderate	High	Low
Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
25: Blint-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
26: Blint-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
27: Blint-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Windry-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
28: Brehm-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
29: Brehm-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
Gorskel-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Moderate
Gorst-----	Duripan-----	12-20	4-17	Indurated-----	Moderate	High	Low
30: Caliralls-----	---	---	---	---	Moderate	High	Low
31: Caliralls-----	---	---	---	---	Moderate	High	Low
32: Caliralls-----	---	---	---	---	Moderate	High	Low
Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
33: Caliralls-----	---	---	---	---	Moderate	High	Low
Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
34: Caliralls-----	---	---	---	---	Moderate	High	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
35: Camaspatch-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
36: Camaspatch-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
37: Camaspatch-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
38: Camaspatch-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
39: Camaspatch-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Colockum-----	---	---	---	---	Moderate	High	Low
40: Camaspatch-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Tanksel-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
41: Camaspatch-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Tanksel-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Lainand-----	Bedrock (lithic)	40-60	---	Indurated-----	Moderate	Moderate	Low
42: Camaspatch-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
43: Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
44: Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
45: Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
46: Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
47: Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
48: Colockum-----	---	---	---	---	Moderate	High	Low
49: Colockum-----	---	---	---	---	Moderate	High	Low
50: Colockum-----	---	---	---	---	Moderate	High	Low
51: Colockum-----	---	---	---	---	Moderate	High	Low
Tronsen-----	---	---	---	---	Moderate	Moderate	Low
52: Disage-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
53: Disage-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
54: Disage-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
55: Disage-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
Clenage-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
56: Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
57: Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
58: Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Disage-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
Kiona-----	---	---	---	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
59: Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	None	---	---
60: Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	None	---	---
61: Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Schappy-----	Bedrock (lithic)	40-60	---	Indurated-----	High	High	Low
Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
62: Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Schappy-----	Bedrock (lithic)	40-60	---	Indurated-----	High	High	Low
Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
63: Drysel-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
64: Drysel-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
65: Durtash-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
66: Esquatzel-----	---	---	---	---	Moderate	High	Low
67: Esquatzel-----	---	---	---	---	Moderate	High	Low
68: Esquatzel-----	---	---	---	---	Moderate	High	Low
Aquolls-----	Bedrock (lithic)	20-20	---	Indurated-----	Low	High	Low
Weirman-----	---	---	---	---	Low	Moderate	Low
69: Esquatzel-----	---	---	---	---	Moderate	High	Low
Weirman fine sandy loam	---	---	---	---	Low	Moderate	Low
Weirman very cobbly sandy loam-----	---	---	---	---	Low	Moderate	Low
70: Finley sandy loam-----	---	---	---	---	Moderate	High	Low
Finley cobbly sandy loam-----	---	---	---	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
71: Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Nevo-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
72: Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Nevo-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
73: Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
Drino-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Schappy-----	Bedrock (lithic)	40-60	---	Indurated-----	High	High	Low
74: Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
Nevo-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	None	---	---
75: Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	None	---	---
76: Frint-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Gidwin-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
77: Frint-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Hogranch-----	Bedrock (lithic)	40-60	---	Indurated-----	Moderate	Moderate	Low
78: Frint-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Hogranch-----	Bedrock (lithic)	40-60	---	Indurated-----	Moderate	Moderate	Low
Gidwin-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
79: Gorskel silt loam-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Moderate
Gorskel cobbly loam-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Moderate
80: Gorst-----	Duripan-----	12-20	4-17	Indurated-----	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
81: Grinrod-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
82: Grinrod-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
83: Haploxerolls-----	---	---	---	---	High	High	Moderate
Orthents-----	---	---	---	---	Low	Moderate	Low
Aquolls-----	Bedrock (lithic)	20-20	---	Indurated-----	Low	High	Low
84: Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
85: Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
86: Kiona-----	---	---	---	---	Moderate	High	Low
87: Kiona-----	---	---	---	---	Moderate	High	Low
Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
88: Lainand-----	Bedrock (lithic)	40-60	---	Indurated-----	Moderate	Moderate	Low
Tanksel-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
89: Laric-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
90: Laric-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
91: Levnik-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Nosser-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Nevo-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
92: Malaga-----	---	---	---	---	Low	High	Low
93: Malaga-----	---	---	---	---	Low	High	Low
94: Manastash-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
95: Manastash-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
96: Manastash-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
Durtash-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
97: Manastash-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
Durtash-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
98: Manastash-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
Meloza-----	---	---	---	---	Moderate	High	Low
Durtash-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
99: Manastash-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
Selah-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
Gorst-----	Duripan-----	12-20	4-17	Indurated-----	Moderate	High	Low
100: Marlic-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
Laric-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
101: Meloza-----	---	---	---	---	Moderate	High	Low
Roza-----	---	---	---	---	Moderate	High	Low
102: Meloza-----	---	---	---	---	Moderate	High	Low
Roza-----	---	---	---	---	Moderate	High	Low
103: Meloza-----	---	---	---	---	Moderate	High	Low
Roza-----	---	---	---	---	Moderate	High	Low
104: Nack-----	---	---	---	---	High	High	Low
Opnish-----	---	---	---	---	High	High	Low
105: Neppel-----	---	---	---	---	Moderate	High	Low
Scoon-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
106: Nevo-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
107: Nevo-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
108: Nevo very cobbly loam--	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Nevo extremely gravelly sandy loam-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
109: Nevo very cobbly loam--	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
Nevo extremely gravelly sandy loam-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
110: Niben-----	---	---	---	---	Moderate	High	Low
Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Benwy-----	---	---	---	---	Moderate	High	Low
111: Norod-----	Bedrock (lithic)	25-40	---	Indurated-----	Moderate	Moderate	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
112: Norod-----	Bedrock (lithic)	25-40	---	Indurated-----	Moderate	Moderate	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
113: Norod-----	Bedrock (lithic)	25-40	---	Indurated-----	Moderate	Moderate	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
114: Norod-----	Bedrock (lithic)	25-40	---	Indurated-----	Moderate	Moderate	Low
Ralock-----	---	---	---	---	Moderate	High	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
115: Norod-----	Bedrock (lithic)	25-40	---	Indurated-----	Moderate	Moderate	Low
Ralock-----	---	---	---	---	Moderate	High	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
116: Norod-----	Bedrock (lithic)	25-40	---	Indurated-----	Moderate	Moderate	Low
Ralock-----	---	---	---	---	Moderate	High	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
117: Norod-----	Bedrock (lithic)	25-40	---	Indurated-----	Moderate	Moderate	Low
Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
118: Nosser-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
118: Levnik-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
119: Nosser-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Levnik-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
120: Palerf-----	Bedrock (lithic)	25-40	---	Indurated-----	Low	Moderate	Low
Ralock-----	---	---	---	---	Moderate	High	Low
Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
121: Palerf-----	Bedrock (lithic)	25-40	---	Indurated-----	Low	Moderate	Low
Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
122: Palexerolls-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
Patron-----	Bedrock (lithic)	40-60	---	Indurated-----	Moderate	High	Low
123: Patron-----	---	---	---	---	Moderate	Moderate	Low
Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
124: Prosser-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
125: Prosser-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
Nevo-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
126: Ralock-----	---	---	---	---	Moderate	High	Low
127: Ralock-----	---	---	---	---	Moderate	High	Low
128: Ralock-----	---	---	---	---	Moderate	High	Low
Horseflat-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
129: Ralock-----	---	---	---	---	Moderate	High	Low
Palerf-----	Bedrock (lithic)	25-40	---	Indurated-----	Low	Moderate	Low
130: Ralock-----	---	---	---	---	Moderate	High	Low
Palerf-----	Bedrock (lithic)	25-40	---	Indurated-----	Low	Moderate	Low
131: Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	None	---	---

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
132: Rollinger-----	---	---	---	---	High	High	Low
133: Rollinger-----	---	---	---	---	High	High	Low
134: Rollinger-----	---	---	---	---	High	High	Low
135: Rollinger-----	---	---	---	---	High	High	Low
136: Rollinger-----	---	---	---	---	High	High	Low
137: Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	None	---	---
138: Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	None	---	---
Kiona-----	---	---	---	---	Moderate	High	Low
139: Sagehill-----	---	---	---	---	Moderate	High	Low
Burbank-----	---	---	---	---	Low	High	Low
Malaga-----	---	---	---	---	Low	High	Low
140: Scoon-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
141: Selah-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
142: Selah-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
143: Selah-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
144: Selah-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
145: Selah-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
146: Schappy-----	Bedrock (lithic)	40-60	---	Indurated-----	High	High	Low
Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
147: Schappy-----	Bedrock (lithic)	40-60	---	Indurated-----	High	High	Low
Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
148: Schappy-----	Bedrock (lithic)	40-60	---	Indurated-----	High	High	Low
Fortyday-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
149: Starbuck-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	None	---	---
150: Tankssel-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Patron-----	---	---	---	---	Moderate	Moderate	Low
Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
151: Tankssel-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Patron-----	---	---	---	---	Moderate	Moderate	Low
Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
152: Tankssel-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Wockum-----	---	---	---	---	Moderate	High	Low
153: Tankssel-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Wockum-----	---	---	---	---	Moderate	High	Low
154: Tankssel-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Wockum-----	---	---	---	---	Moderate	High	Low
155: Terlan-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
156: Terlan-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
157: Terlan-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
Durtash-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
Selah-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
158: Terlan-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
Durtash-----	Duripan-----	10-20	4-17	Indurated-----	Moderate	High	Low
Selah-----	Duripan-----	20-40	4-17	Indurated-----	Moderate	High	Low
159: Timmerman sandy loam---	---	---	---	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
159: Timmerman loamy sand---	---	---	---	---	Moderate	High	Low
160: Tronsen-----	---	---	---	---	Moderate	Moderate	Low
161: Tronsen-----	---	---	---	---	Moderate	Moderate	Low
162: Vantage-----	Bedrock (lithic)	15-20	---	Indurated-----	Moderate	Moderate	Low
163: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
164: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
165: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
166: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
167: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Benwy-----	Duripan-----	40-60	4-17	Indurated-----	Moderate	High	Low
Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
168: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Benwy-----	Duripan-----	40-60	4-17	Indurated-----	Moderate	High	Low
Argabak-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
169: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
170: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
171: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
172: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Rubble land-----	Bedrock (lithic)	40-40	---	Indurated-----	None	---	---
173: Vantage-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
173: Niben-----	---	---	---	---	Moderate	High	Low
Clerf-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
174: Vantage-----	Bedrock (lithic)	15-20	---	Indurated-----	Moderate	Moderate	Low
Vantage, thin-----	Bedrock (lithic)	12-15	---	Indurated-----	Moderate	Moderate	Low
175: Vantage-----	Bedrock (lithic)	15-20	---	Indurated-----	Moderate	Moderate	Low
Vantage, thin-----	Bedrock (lithic)	12-15	---	Indurated-----	Moderate	Moderate	Low
176: Vantage-----	Bedrock (lithic)	15-20	---	Indurated-----	Moderate	Moderate	Low
Vantage, thin-----	Bedrock (lithic)	12-15	---	Indurated-----	Moderate	Moderate	Low
177: Wanapum-----	Duripan-----	11-19	4-17	Indurated-----	Moderate	High	Low
178: Wanapum loam-----	Duripan-----	11-19	4-17	Indurated-----	Moderate	High	Low
Wanapum cobbly loam---	Duripan-----	11-19	4-17	Indurated-----	Moderate	High	Low
179: Wanapum loam-----	Duripan-----	11-19	4-17	Indurated-----	Moderate	High	Low
Wanapum cobbly loam---	Duripan-----	11-19	4-17	Indurated-----	Moderate	High	Low
180: Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
181: Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
182: Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Tronsen-----	---	---	---	---	Moderate	Moderate	Low
Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
183: Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Tronsen-----	---	---	---	---	Moderate	Moderate	Low
Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
184: Whiskeydick-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Tronsen-----	---	---	---	---	Moderate	Moderate	Low
Camaspach-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
185: Winchester-----	---	---	---	---	Low	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
185: Sagehill-----	---	---	---	---	Moderate	High	Low
Burbank-----	---	---	---	---	Low	High	Low
186: Wipple-----	---	---	---	---	Low	High	Low
187: Wipple-----	---	---	---	---	Low	High	Low
188: Wipple-----	---	---	---	---	Low	High	Low
189: Wockum-----	---	---	---	---	Moderate	High	Low
190: Wockum-----	---	---	---	---	Moderate	High	Low
191: Wockum-----	---	---	---	---	Moderate	High	Low
Blint-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
192: Wockum-----	---	---	---	---	Moderate	High	Low
Blint-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	Moderate	Low
Windry-----	Bedrock (lithic)	14-20	---	Indurated-----	Moderate	Moderate	Low
193: Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
194: Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
195: Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
196: Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
Benwy-----	Duripan-----	40-60	4-17	Indurated-----	Moderate	High	Low
Laric-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
197: Zen-----	Bedrock (lithic)	20-40	---	Indurated-----	Moderate	High	Low
Marlic-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	Moderate	Low
Laric-----	Bedrock (lithic)	5-12	---	Indurated-----	Moderate	Moderate	Low
198: Torrifluents, very cobbly-----	---	---	---	---	Low	High	Low
Torrifluents, gravelly	---	---	---	---	Low	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
199: Haploxerolls sandy loam	---	---	---	---	High	High	Moderate
Haploxerolls silt loam	---	---	---	---	High	High	Moderate
200: Malaga, cobbly-----	---	---	---	---	Low	High	Low
Malaga, stony-----	---	---	---	---	Low	High	Low
201: Semal, cobbly-----	Duripan-----	20-40	0-3	Strongly cemented	Low	High	Low
Semal, very cobbly----	Duripan-----	20-40	0-3	Strongly cemented	Low	High	Low
Semal, stony-----	Duripan-----	20-40	0-3	Strongly cemented	Low	High	Low
202: Water.							
203: Pits-----	Bedrock (lithic)	0	---	Indurated-----	---	---	---
204: Dam.							
205: Arents.							
206: Burbank-----	---	---	---	---	Low	High	Low
207: Rock Creek-----	Bedrock (lithic)	8-20	---	Indurated-----	Moderate	Moderate	Low
208: Kiona-----	---	---	---	---	Moderate	High	Low
209: Lickskillet-----	Bedrock (lithic)	12-20	---	Indurated-----	Moderate	High	Low
210: Starbuck-----	Bedrock (lithic)	12-20	---	Indurated-----	High	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	---	---	---
211: Starbuck-----	Bedrock (lithic)	12-20	---	Indurated-----	High	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated-----	---	---	---
212: Willis-----	Duripan-----	20-40	4-17	Indurated-----	High	High	Low
	Bedrock (lithic)	30	---	Indurated-----	---	---	---
213: Willis-----	Duripan-----	20-40	4-17	Indurated-----	High	High	Low
	Bedrock (lithic)	30	---	Indurated-----	---	---	---
214: Willis-----	Duripan-----	20-40	4-17	Indurated-----	High	High	Low
	Bedrock (lithic)	30	---	Indurated-----	---	---	---

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
215: Bakeoven-----	Bedrock (lithic)	In 4-10	In ---	Indurated-----	Moderate	Moderate	Low

Table 19.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Aquolls-----	Aquolls
Arents-----	Arents
Argabak-----	Loamy-skeletal, mixed, mesic Lithic Argixerolls
Argids-----	Argids
Argixerolls-----	Argixerolls
Bakeoven-----	Loamy-skeletal, mixed, mesic Lithic Haploxerolls
Benwy-----	Fine-loamy, mixed, mesic Aridic Calcic Argixerolls
Blint-----	Loamy-skeletal, mixed, mesic Vitrandic Argixerolls
Brehm-----	Loamy-skeletal, mixed, mesic Argiduridic Durixerolls
Burbank-----	Sandy-skeletal, mixed, mesic Xeric Torriorthents
Caliralls-----	Fine-loamy, mixed, mesic Aridic Calcic Argixerolls
Camaspatch-----	Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls
Clenage-----	Clayey-skeletal, montmorillonitic, mesic Xeric Haplargids
Clerf-----	Clayey-skeletal, montmorillonitic, mesic Aridic Palexerolls
Colockum-----	Fine-loamy, mixed, mesic Calcic Argixerolls
Disage-----	Clayey-skeletal, montmorillonitic, mesic Lithic Xeric Haplargids
Drino-----	Loamy-skeletal, mixed, mesic Xeric Haplargids
Drysel-----	Fine-loamy, mixed, mesic Xeric Argidurids
Durixerolls-----	Durixerolls
Durtash-----	Clayey-skeletal, montmorillonitic, mesic, shallow Abruptic Argiduridic Durixerolls
*Esquatzel-----	Coarse-silty, mixed, mesic Torrifluventic Haploxerolls
Finley-----	Loamy-skeletal, mixed, mesic Xeric Haplocambids
Fortyday-----	Loamy-skeletal, mixed, mesic Lithic Xeric Haplargids
Frint-----	Loamy-skeletal, mixed, frigid Vitrandic Haploxerolls
Gidwin-----	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Gorskell-----	Loamy-skeletal, mixed, mesic, shallow Argiduridic Durixerolls
Gorst-----	Loamy, mixed, mesic, shallow Haploduridic Durixerolls
Grinrod-----	Loamy-skeletal, mixed, mesic Aridic Argixerolls
Haploxerolls-----	Haploxerolls
Hogranche-----	Loamy-skeletal, mixed, frigid Vitrandic Haploxerolls
Horseflat-----	Loamy-skeletal, mixed, mesic Lithic Argixerolls
Kiona-----	Loamy-skeletal, mixed, mesic Xeric Haplocambids
Lainand-----	Loamy-skeletal, mixed, mesic Vitrandic Argixerolls
Laric-----	Loamy, mixed, mesic Lithic Argixerolls
Levnik-----	Clayey, montmorillonitic, mesic Lithic Xeric Haplargids
Lickskillet-----	Loamy-skeletal, mixed, mesic Lithic Haploxerolls
Malaga-----	Sandy-skeletal, mixed, mesic Xeric Haplocambids
Manastash-----	Fine, montmorillonitic, mesic Abruptic Argiduridic Durixerolls
Marlic-----	Loamy, mixed, mesic Lithic Argixerolls
Meloza-----	Fine, montmorillonitic, mesic Torriertic Argixerolls
Nack-----	Loamy-skeletal, mixed, mesic Pachic Palexerolls
Neppel-----	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Durinodic Xeric Haplocambids
Nevo-----	Loamy-skeletal, mixed, mesic Lithic Xeric Haplargids
Niben-----	Fine-loamy, mixed, mesic Calcic Pachic Argixerolls
Norod-----	Loamy-skeletal, mixed, mesic Vitrandic Argixerolls
Nosser-----	Fine-loamy, mixed, mesic Xeric Haplargids
Opnish-----	Fine, mixed, mesic Calcic Pachic Argixerolls
Orthents-----	Orthents
Palerf-----	Clayey-skeletal, montmorillonitic, mesic Pachic Palexerolls
Palexerolls-----	Palexerolls
Patron-----	Fine, montmorillonitic, mesic Pachic Palexerolls
Prosser-----	Coarse-loamy, mixed, mesic Xeric Haplocambids
Ralock-----	Fine-loamy, mixed, mesic Vitrandic Argixerolls
Rock Creek-----	Clayey-skeletal, montmorillonitic, mesic Lithic Mollic Haploxeralfs
Rollinger-----	Fine-loamy, mixed, mesic Vitrandic Argixerolls
Roza-----	Fine, montmorillonitic, mesic Xerertic Haplocambids
Sagehill-----	Coarse-loamy, mixed, mesic Xeric Haplocalcids
Scoon-----	Loamy, mixed, mesic, shallow Xeric Haplodurids
Selah-----	Fine-loamy, mixed, mesic Argiduridic Durixerolls

Table 19.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Semal-----	Sandy-skeletal, mixed, mesic Xeric Haplodurids
Sohappy-----	Coarse-loamy, mixed, mesic Xeric Haplocambids
Starbuck-----	Loamy, mixed, mesic Lithic Xeric Haplocambids
Tanksel-----	Clayey-skeletal, montmorillonitic, mesic Vitrandic Argixerolls
Terlan-----	Loamy, mixed, mesic, shallow Argiduridic Durixerolls
Timmerman-----	Sandy, mixed, mesic Xeric Haplocambids
Torrifluvents-----	Torrifluvents
Tronsen-----	Clayey-skeletal, mixed, mesic Typic Palexerolls
Vantage-----	Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls
Wanapum-----	Loamy-skeletal, mixed, mesic, shallow Xeric Argidurids
Weirman-----	Sandy-skeletal, mixed, mesic Torrifluventic Haploxerolls
Whiskeydick-----	Clayey-skeletal, montmorillonitic, mesic Typic Palexerolls
Willis-----	Coarse-silty, mixed, mesic Haploduridic Durixerolls
Winchester-----	Mixed, mesic Xeric Torrripsamments
Windry-----	Loamy-skeletal, mixed, mesic Lithic Argixerolls
Wipple-----	Clayey-skeletal, montmorillonitic, mesic Aridic Palexerolls
Wockum-----	Fine-loamy, mixed, mesic Vitrandic Argixerolls
Zen-----	Fine-loamy, mixed, mesic Aridic Calcic Argixerolls



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