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**County specific computer generated reports.*

ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Ford County, Kansas: Maintenance needed

Map symbol	Soil name	Acres	Percent
025KB	Kingsdown Fine Sandy Loam, 2 To 5 Percent Slopes-----	175	*
025PF	Penden Clay Loam, 2 To 7 Percent Slopes, Eroded-----	87	*
025PG	Penden Clay Loam, 7 To 15 Percent Slopes-----	3,467	0.5
025RF	Roxbury Silt Loam, Occasionally Flooded-----	121	*
025SA	Satanta Loam, 0 To 2 Percent Slopes-----	66	*
047BK	Coly-Tobin Silt Loams, 0 To 15 Percent Slopes-----	23	*
047HD	Harney-Uly Complex, 1 To 3 Percent Slopes-----	11	*
047HO	Hord Silt Loam, Rarely Flooded-----	1,140	0.2
047PA	Platte Soils, Occasionally Flooded-----	104	*
047ZE	Lesho Clay Loam, Saline, Occasionally Flooded-----	68	*
069AN	Bridgeport Silt Loam, Channeled-----	46	*
069LA	Las Animas-Lesho Complex, Alkali, Occasionally Flooded-----	387	*
069ME	Penden Clay Loam, 6 To 15 Percent Slopes-----	272	*
069PA	Pratt Loamy Fine Sand, 1 To 6 Percent Slopes-----	460	*
069RN	Richfield Silt Loam, 1 To 3 Percent Slopes-----	129	*
069SA	Satanta Loam, 0 To 1 Percent Slopes-----	105	*
069SB	Satanta Loam, 1 To 3 Percent Slopes-----	186	*
069UB	Ulysses Silt Loam, 1 To 3 Percent Slopes-----	20	*
069UC	Ulysses Silt Loam, 3 To 6 Percent Slopes-----	26	*
083HO	Hord Silty Clay Loam, Rarely Flooded-----	275	*
083KP	Kim-Penden Silty Clay Loams, 3 To 6 Percent Slopes, Eroded-----	66	*
083RZ	Bridgeport Silty Clay Loam, 2 To 5 Percent Slopes-----	83	*
097AT	Attica Loamy Fine Sand, 1 To 4 Percent Slopes-----	132	*
097CO	Coly Silt Loam, 4 To 9 Percent Slopes-----	9	*
097CT	Coly-Tobin Silt Loams, 0 To 20 Percent Slopes-----	623	*
119OZ	Otero-Manter Fine Sandy Loams, 3 To 6 Percent Slopes-----	29	*
119PR	Pratt Soils, 0 To 5 Percent Slopes-----	2	*
119RX	Roxbury Silt Loam, Rarely Flooded-----	1,620	0.2
Ad	Tivoli Fine Sand, 4 To 20 Percent Slopes, Eroded-----	207	*
An	Roxbury Silt Loam, Channeled-----	6,073	0.9
ARR	Arkansas River-----	1,913	0.3
As	Lesho-Lesho, Saline Clay Loams, Occasionally Flooded-----	2,485	0.4
Bc	Bippus Clay Loam, 2 To 5 Percent Slopes-----	2,540	0.4
BOP	Borrow Pits-----	13	*
Br	Fluvents-----	3,421	0.5
Ca	Canadian Fine Sandy Loam, Rarely Flooded-----	6,256	0.9
Da	Dale Silt Loam, Rarely Flooded-----	14,626	2.1
Dh	Dale And Humbarger Clay Loams, Rarely Flooded-----	17,558	2.5
Dl	Dalhart-Lubbock Complex, 0 To 5 Percent Slopes-----	4,511	0.6
GRP	Gravel Pit-----	337	*
Ha	Harney Silt Loam, 0 To 1 Percent Slopes-----	182,724	26.0
Hb	Harney Silt Loam, 1 To 3 Percent Slopes-----	160,909	22.9
Hd	Holdrege Fine Sandy Loam, 1 To 3 Percent Slopes-----	7,870	1.1
Hg	Holdrege Loam, 0 To 1 Percent Slopes-----	4,566	0.6
Ho	Holdrege Silt Loam, 0 To 1 Percent Slopes-----	11,888	1.7
Hs	Holdrege Silt Loam, 1 To 3 Percent Slopes-----	16,280	2.3
INL	Aquolls-----	303	*
La	Las Animas Sandy Loam, Occasionally Flooded-----	2,823	0.4
Lc	Las Animas-Lincoln Complex, Occasionally Flooded-----	6,545	0.9
Ln	Las Animas-Tivoli Complex, 0 To 6 Percent Slopes, Occasionally Flooded---	1,194	0.2
Ls	Leshara Clay Loam, Occasionally Flooded-----	4,685	0.7
Lt	Lesho Clay Loam, Occasionally Flooded-----	3,382	0.5
Lu	Lincoln Soils, Frequently Flooded-----	1,804	0.3
M-W	Miscellaneous Water-----	105	*
Ma	Penden Clay Loam, 0 To 1 Percent Slopes-----	2,516	0.4
Mb	Penden Clay Loam, 1 To 3 Percent Slopes-----	3,841	0.5
Mc	Penden Clay Loam, 1 To 3 Percent Slopes, Eroded-----	1,543	0.2
Md	Penden Clay Loam, 3 To 6 Percent Slopes-----	11,199	1.6
Mf	Penden And Campus Soils, 3 To 6 Percent Slopes, Eroded-----	2,714	0.4
Mh	Penden-Tobin Complex, 0 To 15 Percent Slopes-----	24,697	3.5
Mn	Campus Clay Loam, 0 To 3 Percent Slopes-----	2,552	0.4
Mp	Campus-Canlon Complex, 3 To 40 Percent Slopes-----	10,220	1.5
Of	Attica Fine Sandy Loam, 0 To 2 Percent Slopes-----	1,024	0.1
Or	Attica Fine Sandy Loam, 2 To 8 Percent Slopes-----	6,431	0.9
Os	Attica-Carwile Complex, 0 To 4 Percent Slopes-----	8,950	1.3
Ot	Otero Fine Sandy Loam, 2 To 6 Percent Slopes-----	575	*
Po	Canlon Soils, 15 To 40 Percent Slopes-----	740	0.1
Pr	Pratt Loamy Fine Sand, 3 To 10 Percent Slopes-----	6,412	0.9
Pt	Pratt-Tivoli Loamy Fine Sands, 4 To 15 Percent Slopes-----	19,594	2.8
Ra	Ness Clay-----	5,571	0.8
Sb	Pratt-Humbarger Complex, 0 To 15 Percent Slopes-----	1,973	0.3
Sp	Spearville Silty Clay Loam, 0 To 1 Percent Slopes-----	14,533	2.1
Sr	Spearville Complex, 1 To 3 Percent Slopes, Eroded-----	12,562	1.8
Tv	Tivoli Fine Sand, 5 To 20 Percent Slopes-----	7,554	1.1
Ua	Uly Silt Loam, 1 To 3 Percent Slopes-----	7,150	1.0
Ub	Uly Silt Loam, 3 To 6 Percent Slopes-----	38,132	5.4
Uc	Uly-Coly Silt Loams, 3 To 6 Percent Slopes, Eroded-----	16,797	2.4
Uh	Uly-Harney Silt Loams, 1 To 3 Percent Slopes-----	12,852	1.8
Un	Uly-Harney Complex, 1 To 3 Percent Slopes, Eroded-----	1,921	0.3
Up	Uly-Tobin Complex, 0 To 6 Percent Slopes-----	6,376	0.9
W	Water-----	184	*
Total-----		703,363	100.0

* Less than 0.1 percent.

Nontechnical Soil Descriptions
Ford County, Kansas

Nontechnical soil descriptions describe soil properties or management considerations specific to a soil map unit or group of map units, shown in the Nontechnical Descriptions report. These descriptions are written in terminology that Non-technical users of soil survey information can understand. Nontechnical soil descriptions are a powerful tool for creating reports. These high quality, easy to read reports can be generated by conservation planners and other NRCS employees for distribution to land users. Soil map unit descriptions and National Soil Information System records are the basis for these descriptions.

025KB Kingsdown Fine Sandy Loam, 2 To 5 Percent Slopes

Kingsdown soil makes up 100 percent of the map unit. This map unit is in the Central Rolling Red Plains Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping sand sheet on paleoterrace on tableland. The runoff class is very low. The parent material consists of eolian sands. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy (pe20-25) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

025PF Penden Clay Loam, 2 To 7 Percent Slopes, Eroded

Penden soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping plain on tableland. The runoff class is low. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-25) range site. It is in the nonirrigated land capability classification 4e.

025PG Penden Clay Loam, 7 To 15 Percent Slopes

Penden soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a strongly sloping to moderately steep break on tableland. The runoff class is medium. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-25) range site. It is in the nonirrigated land capability classification 6e.

025RF Roxbury Silt Loam, Occasionally Flooded

Roxbury soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Lowland (pe20-25) range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

025SA Satanta Loam, 0 To 2 Percent Slopes

Satanta soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping sand sheet on tableland. The runoff class is low. The parent material consists of eolian sands. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2c.

047BK Coly-Tobin Silt Loams, 0 To 15 Percent Slopes

Coly soil makes up 75 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping to moderately steep hillslope on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe20-26) range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

Tobin soil makes up 25 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe20-26) range site. It is in the nonirrigated land capability classification 2w.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

047HD Harney-Uly Complex, 1 To 3 Percent Slopes

Harney soil makes up 80 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Uly soil makes up 20 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping summit paleoterrace on plains. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

047HO Hord Silt Loam, Rarely Flooded

Hord soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Terrace (pe20-26) range site. This soil is in the irrigated land capability class 1. It is in the nonirrigated land capability classification 2c.

047PA Platte Soils, Occasionally Flooded

Platte soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is very low. The parent material consists of loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderate. It has a low available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 18 inches. This soil is in the Subirrigated (pe21-28) range site. This soil is in the irrigated land capability class 4w. It is in the nonirrigated land capability classification 4w.

047ZE Lesho Clay Loam, Saline, Occasionally Flooded

Lesho soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is low. The parent material consists of loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 36 inches. This soil contains a moderately saline horizon, it has a horizon that is slightly sodic. This soil is in the Saline Lowland (pe21-28) range site. This soil is in the irrigated land capability class 3s. It is in the nonirrigated land capability classification 4s.

069LA Las Animas-Lesho Complex, Alkali, Occasionally Flooded

Las Animas, occasionally flooded, soil makes up 50 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of loamy and/or sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 36 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a slightly saline horizon. This soil is in the Saline Subirrigated (pe16-20) range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 4w.

Lesho, occasionally flooded, soil makes up 40 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level river valley on flood plain. The runoff class is low. The parent material consists of loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately slow. It has a moderate available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 36 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a moderately saline horizon. This soil is in the Saline Subirrigated (pe16-20) range site. This soil is in the irrigated land capability class 3s. It is in the nonirrigated land capability classification 4s.

069ME Penden Clay Loam, 6 To 15 Percent Slopes

Penden soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep plain on tableland. The runoff class is medium. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe16-20) range site. It is in the nonirrigated land capability classification 6e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

069PA Pratt Loamy Fine Sand, 1 To 6 Percent Slopes

Pratt soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping dune on paleoterrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sands (pe16-20) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

069RN Richfield Silt Loam, 1 To 3 Percent Slopes

Richfield soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

069SA Satanta Loam, 0 To 1 Percent Slopes

Satanta soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level sand sheet on paleoterrace on tableland. The runoff class is low. The parent material consists of loamy eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

069SB Satanta Loam, 1 To 3 Percent Slopes

Satanta soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping sand sheet on paleoterrace on tableland. The runoff class is low. The parent material consists of loamy eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

069UB Ulysses Silt Loam, 1 To 3 Percent Slopes

Ulysses soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping ridge on upland. The runoff class is low. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

069UC Ulysses Silt Loam, 3 To 6 Percent Slopes

Ulysses soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping plain on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

083HO Hord Silty Clay Loam, Rarely Flooded

Hord soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Terrace (pe20-26) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

083KP Kim-Penden Silty Clay Loams, 3 To 6 Percent Slopes, Eroded

Kim soil makes up 60 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping alluvial fan on breaks, fan remnant on breaks. The runoff class is medium. The parent material consists of sandy and/or loamy alluvium. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Lmy Upland (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

Penden soil makes up 40 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping plain on tableland. The runoff class is low. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. It is in the nonirrigated land capability classification 3e.

083RZ Bridgeport Silty Clay Loam, 2 To 5 Percent Slopes

Bridgeport soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping flood plain on river valley. The runoff class is low. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

097AT Attica Loamy Fine Sand, 1 To 4 Percent Slopes

Attica soil makes up 100 percent of the map unit. This map unit is in the This soil occurs on a gently sloping to moderately sloping dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy (pe21-28) range site. It is in the nonirrigated land capability classification 2e.

097CO Coly Silt Loam, 4 To 9 Percent Slopes

Coly soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on tableland. The runoff class is medium. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe20-25) range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

097CT Coly-Tobin Silt Loams, 0 To 20 Percent Slopes

Coly soil makes up 70 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a strongly sloping to moderately steep hillslope on tableland. The runoff class is medium. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe20-25) range site. It is in the nonirrigated land capability classification 6e.

Tobin soil makes up 30 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe20-25) range site. It is in the nonirrigated land capability classification 5w.

1190Z Otero-Manter Fine Sandy Loams, 3 To 6 Percent Slopes

Otero soil makes up 60 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping fan remnant on breaks. The runoff class is low. The parent material consists of sandy and/or loamy alluvium. This soil is somewhat excessively drained. The slowest permeability is moderately rapid. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Sandy (pe20-25) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Manter soil makes up 40 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping sand sheet on paleoterrace on tableland. The runoff class is low. The parent material consists of loamy eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy (pe20-25) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

119PR Pratt Soils, 0 To 5 Percent Slopes

Pratt soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to moderately sloping dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sands (pe17-20) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

119RX Roxbury Silt Loam, Rarely Flooded

Roxbury soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is low. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Terrace (pe20-26) range site. This soil is in the irrigated land capability class 1. It is in the nonirrigated land capability classification 2c.

Ad Tivoli Fine Sand, 4 To 20 Percent Slopes, Eroded

Tivoli soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Choppy Sands (pe20-26) range site. It is in the nonirrigated land capability classification 7e.

An Roxbury Silt Loam, Channeled

Roxbury soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Lowland (pe20-26) range site. It is in the nonirrigated land capability classification 5w.

As Lesho-Lesho, Saline Clay Loams, Occasionally Flooded

Lesho soil makes up 75 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately slow. It has a moderate available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 36 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Loamy Lowland (pe20-26) range site. It is in the nonirrigated land capability classification 3w.

Lesho, Saline soil makes up 25 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately slow. It has a moderate available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 36 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a moderately saline horizon. This soil is in the Saline Subirrigated (pe20-26) range site. This soil is in the irrigated land capability class 3s. It is in the nonirrigated land capability classification 4s.

Bc Bippus Clay Loam, 2 To 5 Percent Slopes

Bippus soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping river valley, alluvial fan. The runoff class is low. The parent material consists of loamy alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Br Fluvents

Fluents soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to steep flood-plain step on river valley. The runoff class is medium. The parent material consists of alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. It is in the nonirrigated land capability classification 6w.

Ca Canadian Fine Sandy Loam, Rarely Flooded

Canadian soil makes up 100 percent of the map unit. This map unit is in the Central Rolling Red Plains Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of loamy alluvium. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy Terrace (pe20-26) range site. It is in the nonirrigated land capability classification 2e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

Da Dale Silt Loam, Rarely Flooded

Dale soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Loamy Terrace (pe20-26) range site. It is in the nonirrigated land capability classification 2c.

Dh Dale And Humbarger Clay Loams, Rarely Flooded

Dale soil makes up 50 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Loamy Terrace (pe20-26) range site. It is in the nonirrigated land capability classification 2c.

Humbarger soil makes up 50 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of loamy alluvium. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Terrace (pe20-26) range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

Dl Dalhart-Lubbock Complex, 0 To 5 Percent Slopes

Dalhart soil makes up 70 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping sand sheet on paleoterrace on tableland. The runoff class is low. The parent material consists of loamy eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Lubbock soil makes up 30 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level paleoterrace. The runoff class is medium. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderately slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Ha Harney Silt Loam, 0 To 1 Percent Slopes

Harney soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level plain on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Hb Harney Silt Loam, 1 To 3 Percent Slopes

Harney soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Hd Holdrege Fine Sandy Loam, 1 To 3 Percent Slopes

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

Hg Holdrege Loam, 0 To 1 Percent Slopes

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level plain on tableland. The runoff class is low. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Ho Holdrege Silt Loam, 0 To 1 Percent Slopes

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level plain on upland. The runoff class is low. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Hs Holdrege Silt Loam, 1 To 3 Percent Slopes

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

INL Aquolls

Aquolls soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level depression on terrace on river valley. The runoff class is negligible. The parent material consists of alluvium. This soil is very poorly drained. It has a very low available water capacity and a low shrink swell potential. This soil is not flooded and is occasional ponded. The top of the seasonal high water table is at 0 inches. It is in the nonirrigated land capability classification 5w.

La Las Animas Sandy Loam, Occasionally Flooded

Las Animas, occasionally flooded, soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of loamy and/or sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Saline Subirrigated (pe20-26) range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 3w.

Lc Las Animas-Lincoln Complex, Occasionally Flooded

Las Animas soil makes up 80 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of loamy and/or sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Saline Subirrigated (pe20-26) range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 4w.

Lincoln soil makes up 20 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of loamy and/or sandy alluvium. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 66 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy Lowland (pe20-26) range site. It is in the nonirrigated land capability classification 6s.

Ln Las Animas-Tivoli Complex, 0 To 6 Percent Slopes, Occasionally Flooded

Las Animas soil makes up 50 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of loamy and/or sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Saline Subirrigated (pe20-26) range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 3w.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

Tivoli soil makes up 50 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sands (pe20-26) range site. It is in the nonirrigated land capability classification 6e.

Ls Leshara Clay Loam, Occasionally Flooded

Leshara soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is low. The parent material consists of loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Subirrigated (pe20-26) range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

Lt Lesho Clay Loam, Occasionally Flooded

Lesho, occasionally flooded, soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level river valley on flood plain. The runoff class is low. The parent material consists of loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately slow. It has a moderate available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 36 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Saline Subirrigated (pe16-20) range site. It is in the nonirrigated land capability classification 3w.

Lu Lincoln Soils, Frequently Flooded

Lincoln soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of loamy and/or sandy alluvium. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 66 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy Lowland (pe20-26) range site. It is in the nonirrigated land capability classification 7w.

Ma Penden Clay Loam, 0 To 1 Percent Slopes

Penden soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level plain on tableland. The runoff class is negligible. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Mb Penden Clay Loam, 1 To 3 Percent Slopes

Penden soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Mc Penden Clay Loam, 1 To 3 Percent Slopes, Eroded

Penden soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

Md Penden Clay Loam, 3 To 6 Percent Slopes

Penden soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping plain on tableland. The runoff class is medium. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

Mf Penden And Campus Soils, 3 To 6 Percent Slopes, Eroded

Penden soil makes up 85 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping plain on tableland. The runoff class is low. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. It is in the nonirrigated land capability classification 4e.

Campus soil makes up 15 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping plain on tableland. The runoff class is medium. The parent material consists of old calcareous fine-loamy alluvium and/or calcareous fine-loamy residuum. The soil is 20 to 40 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. It is in the nonirrigated land capability classification 4e.

Mh Penden-Tobin Complex, 0 To 15 Percent Slopes

Penden soil makes up 70 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to moderately steep plain on tableland. The runoff class is medium. The parent material consists of residuum. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. It is in the nonirrigated land capability classification 6e.

Tobin soil makes up 30 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Lowland (pe20-26) range site. It is in the nonirrigated land capability classification 5w.

Mn Campus Clay Loam, 0 To 3 Percent Slopes

Campus soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping plain on tableland. The runoff class is medium. The parent material consists of old calcareous fine-loamy alluvium and/or calcareous fine-loamy residuum. The soil is 20 to 40 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Mp Campus-Canlon Complex, 3 To 40 Percent Slopes

Campus soil makes up 70 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep plain on tableland. The runoff class is medium. The parent material consists of old calcareous fine-loamy alluvium and/or calcareous fine-loamy residuum. The soil is 20 to 40 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. It is in the nonirrigated land capability classification 6e.

Canlon soil makes up 30 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to steep break on tableland. The runoff class is medium. The parent material consists of calcareous loamy residuum weathered from sandstone. The soil is 10 to 20 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is moderate. It has a very low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Shallow Limy (pe20-26) range site. It is in the nonirrigated land capability classification 7s.

Of Attica Fine Sandy Loam, 0 To 2 Percent Slopes

Attica soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy (pe20-26) range site. It is in the nonirrigated land capability classification 2e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

Or Attica Fine Sandy Loam, 2 To 8 Percent Slopes

Attica soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping to strongly sloping dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy (pe20-26) range site. It is in the nonirrigated land capability classification 3e.

Os Attica-Carwile Complex, 0 To 4 Percent Slopes

Attica soil makes up 60 percent of the map unit. This map unit is in the Rolling Plains and Breaks Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to moderately sloping dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy (pe20-26) range site. It is in the nonirrigated land capability classification 3e.

Carwile soil makes up 40 percent of the map unit. This map unit is in the Rolling Plains and Breaks Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level depression on paleoterrace. The runoff class is medium. The parent material consists of clayey alluvium. This soil is somewhat poorly drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 0 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy (pe20-26) range site. It is in the nonirrigated land capability classification 2w.

Ot Otero Fine Sandy Loam, 2 To 6 Percent Slopes

Otero soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping fan remnant on breaks. The runoff class is very low. The parent material consists of sandy and/or loamy alluvium. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Sandy (pe20-26) range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

Po Canlon Soils, 15 To 40 Percent Slopes

Canlon soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately steep to steep break on tableland. The runoff class is medium. The parent material consists of calcareous loamy residuum weathered from sandstone. The soil is 10 to 20 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is moderate. It has a very low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 25 percent calcium carbonate. This soil is in the Shallow Limy (pe20-26) range site. It is in the nonirrigated land capability classification 7s.

Pr Pratt Loamy Fine Sand, 3 To 10 Percent Slopes

Pratt soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sands (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Pt Pratt-Tivoli Loamy Fine Sands, 4 To 15 Percent Slopes

Pratt soil makes up 60 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sands (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Tivoli soil makes up 40 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sands (pe20-26) range site. It is in the nonirrigated land capability classification 6e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

Ra Ness Clay

Ness soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level playa on tableland. The runoff class is negligible. The parent material consists of clayey alluvium and/or eolian deposits. This soil is poorly drained. The slowest permeability is very slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 0 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Lakebed (pe20-26) range site. It is in the nonirrigated land capability classification 6w.

Sb Pratt-Humbarger Complex, 0 To 15 Percent Slopes

Pratt soil makes up 70 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping to strongly sloping dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sands (pe20-26) range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 6e.

Humbarger soil makes up 30 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of loamy alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Lowland (pe20-26) range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

Sp Spearville Silty Clay Loam, 0 To 1 Percent Slopes

Spearville soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level plain on tableland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Clay Upland (pe20-26) range site. This soil is in the irrigated land capability class 2s. It is in the nonirrigated land capability classification 2s.

Sr Spearville Complex, 1 To 3 Percent Slopes, Eroded

Spearville soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is high. The parent material consists of loess. This soil is well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Clay Upland (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Tv Tivoli Fine Sand, 5 To 20 Percent Slopes

Tivoli soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Choppy Sands (pe20-26) range site. It is in the nonirrigated land capability classification 7e.

Ua Uly Silt Loam, 1 To 3 Percent Slopes

Uly soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Ub Uly Silt Loam, 3 To 6 Percent Slopes

Uly soil makes up 100 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping plain on tableland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued
Ford County, Kansas

Uc Uly-Coly Silt Loams, 3 To 6 Percent Slopes, Eroded

Uly soil makes up 70 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping plain on tableland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. It is in the nonirrigated land capability classification 4e.

Coly soil makes up 30 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping hillslope on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Limy Upland (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Uh Uly-Harney Silt Loams, 1 To 3 Percent Slopes

Uly soil makes up 60 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Harney soil makes up 40 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Un Uly-Harney Complex, 1 To 3 Percent Slopes, Eroded

Uly soil makes up 70 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Harney soil makes up 30 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. It is in the nonirrigated land capability classification 3e.

Up Uly-Tobin Complex, 0 To 6 Percent Slopes

Uly soil makes up 75 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a moderately sloping plain on tableland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe20-26) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Tobin soil makes up 25 percent of the map unit. This map unit is in the Rolling Plains and Breaks Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Lowland (pe20-26) range site. It is in the nonirrigated land capability classification 2w.

025KB—Kingsdown fine sandy loam, 2 to 5 percent slopes

Map Unit Composition

Kingsdown: 100 percent

Component Descriptions

Kingsdown

MLRA: 78 - Central Rolling Red Plains

Landform: Sand sheet on paleoterrace on tableland

Parent material: Eolian sands

Slope: 2 to 5 percent

Drainage class: Well drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 8.7 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sandy (pe20-25)

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 10 inches; fine sandy loam

H2—10 to 22 inches; fine sandy loam

H3—22 to 60 inches; fine sandy loam

Minor Components

Ness

025PF—Penden clay loam, 2 to 7 percent slopes, eroded

Map Unit Composition

Penden: 100 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Residuum

Slope: 2 to 7 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 10.3 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Limy Upland (pe20-25)

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 16 inches; clay loam

H2—16 to 28 inches; clay loam

H3—28 to 60 inches; clay loam

025PG—Penden clay loam, 7 to 15 percent slopes

Map Unit Composition

Penden: 100 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks

Landform: Break on tableland

Parent material: Residuum

Slope: 7 to 15 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 10.3 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Limy Upland (pe20-25)

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 16 inches; clay loam

H2—16 to 28 inches; clay loam

H3—28 to 60 inches; clay loam

025RF—Roxbury silt loam, occasionally flooded**Map Unit Composition**

Roxbury: 100 percent

Component Descriptions**Roxbury**

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Calcareous fine-silty alluvium

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.4 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Loamy Lowland (pe20-25)

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 21 inches; silt loam

H2—21 to 36 inches; silty clay loam

H3—36 to 60 inches; silty clay loam

Available water capacity: High (About 10.5 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 2e

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 11 inches; loam

H2—11 to 32 inches; clay loam

H3—32 to 60 inches; clay loam

Minor Components**Ness****047BK—Coly-Tobin silt loams, 0 to 15 percent slopes****Map Unit Composition**

Coly: 75 percent

Tobin: 25 percent

Component Descriptions**Coly**

MLRA: 73 - Rolling Plains and Breaks

Landform: Hillslope on tableland

Parent material: Loess

Slope: 1 to 15 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Limy Upland (pe20-26)

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 6 inches; silt loam

H2—6 to 60 inches; silt loam

025SA—Satanta loam, 0 to 2 percent slopes**Map Unit Composition**

Satanta: 100 percent

Component Descriptions**Satanta**

MLRA: 72 - Central High Tableland

Landform: Sand sheet on tableland

Parent material: Eolian sands

Slope: 0 to 2 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Tobin*MLRA:* 73 - Rolling Plains and Breaks*Landform:* Flood plain on river valley*Parent material:* Silty alluvium*Slope:* 0 to 2 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 11.7 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* Occasional*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Negligible*Ecological site:* Loamy Lowland (pe20-26)*Land capability (nonirrigated):* 2w*Typical Profile:*

H1—0 to 15 inches; silt loam

H2—15 to 60 inches; silt loam

Typical Profile:

H1—0 to 6 inches; silty clay loam

H2—6 to 34 inches; silty clay loam

H3—34 to 60 inches; silt loam

Uly*MLRA:* 73 - Rolling Plains and Breaks*Landform:* Paleoterrace on plains*Hillslope position:* Summit*Parent material:* Loess*Slope:* 1 to 3 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 12.0 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Low*Ecological site:* Loamy Upland (pe20-26)*Land capability (irrigated):* 2e*Land capability (nonirrigated):* 2e*Typical Profile:*

H1—0 to 8 inches; silt loam

H2—8 to 30 inches; silty clay loam

H3—30 to 60 inches; silt loam

047HD—Harney-Uly complex, 1 to 3 percent slopes**Map Unit Composition**

Harney: 80 percent

Uly: 20 percent

047HO—Hord silt loam, rarely flooded**Map Unit Composition**

Hord: 100 percent

Component Descriptions**Harney***MLRA:* 73 - Rolling Plains and Breaks*Landform:* Plain on tableland*Parent material:* Loess*Slope:* 1 to 3 percent*Drainage class:* Well drained*Slowest permeability:* Moderately slow (About 0.20 in/hr)*Available water capacity:* High (About 10.8 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Low*Ecological site:* Loamy Upland (pe20-26)*Land capability (irrigated):* 2e*Land capability (nonirrigated):* 2e**Component Descriptions****Hord***MLRA:* 73 - Rolling Plains and Breaks*Landform:* Flood plain on river valley*Parent material:* Silty alluvium*Slope:* 0 to 1 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* Very high (About 12.0 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* Rare*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Negligible

Ecological site: Loamy Terrace (pe20-26)

Land capability (irrigated): 1

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 12 inches; silt loam

H2—12 to 42 inches; silty clay loam

H3—42 to 60 inches; silt loam

Minor Components

Unnamed Hydric Soil 2

Unnamed Hydric Soil 1

Unnamed Wet Soils

Phase: Loamy, Depression

047PA—Platte Soils, occasionally flooded

Map Unit Composition

Platte: 100 percent

Component Descriptions

Platte

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Loamy alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Low (About 3.5 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 12 to 24 inches

Runoff class: Very low

Ecological site: Subirrigated (pe21-28)

Land capability (irrigated): 4w

Land capability (nonirrigated): 4w

Typical Profile:

H1—0 to 9 inches; loam

H2—9 to 60 inches; coarse sand

047ZE—Lesho clay loam, Saline, occasionally flooded

Map Unit Composition

Lesho: 100 percent

Component Descriptions

Lesho

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Loamy alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 9.7 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 24 to 48 inches

Runoff class: Low

Ecological site: Saline Lowland (pe21-28)

Land capability (irrigated): 3s

Land capability (nonirrigated): 4s

Typical Profile:

H1—0 to 15 inches; clay loam

H2—15 to 55 inches; clay loam

H3—55 to 60 inches; sand

069AN—Bridgeport silt loam, channeled

Map Unit Composition

Bridgeport: 100 percent

Component Descriptions

Bridgeport

MLRA: 72 - Central High Tableland

Landform: Flood plain on river valley

Parent material: Silty alluvium

Slope: 0 to 2 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Lowland (pe16-20)

Land capability (nonirrigated): 5w

069LA—Las Animas-Lesho complex, Alkali, occasionally flooded

Map Unit Composition

Las Animas: 50 percent
Lesho: 40 percent
Minor components: 10 percent

Component Descriptions

Las Animas

MLRA: 72 - Central High Tableland
Landform: Flood plain on river valley
Parent material: Loamy and/or sandy alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 8.3 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 24 to 48 inches
Runoff class: Negligible
Ecological site: Saline Subirrigated (pe16-20)
Land capability (irrigated): 3w
Land capability (nonirrigated): 4w

Typical Profile:

H1—0 to 11 inches; sandy loam
H2—11 to 60 inches; sand

Lesho

MLRA: 72 - Central High Tableland
Landform: River valley on flood plain
Parent material: Loamy alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Moderate (About 6.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 24 to 48 inches
Runoff class: Low
Ecological site: Saline Subirrigated (pe16-20)
Land capability (irrigated): 3s
Land capability (nonirrigated): 4s

Typical Profile:

H1—0 to 14 inches; clay loam
H2—14 to 25 inches; clay loam
H3—25 to 60 inches; coarse sand

Minor Components

Slickspots

Composition: About 10 percent
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Ecological site: Clay Pan (pe21-28)

Sweetwater

069ME—Penden clay loam, 6 to 15 percent slopes

Map Unit Composition

Penden: 100 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Residuum
Slope: 6 to 15 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.4 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe16-20)
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 15 inches; clay loam
H2—15 to 34 inches; clay loam
H3—34 to 60 inches; clay loam

069PA—Pratt loamy fine sand, 1 to 6 percent slopes

Map Unit Composition

Pratt: 100 percent

Component Descriptions

Pratt

MLRA: 73 - Rolling Plains and Breaks

Landform: Dune on paleoterrace on river valley

Parent material: Sandy eolian deposits

Slope: 1 to 6 percent

Drainage class: Well drained

Slowest permeability: Rapid (About 6.00 in/hr)

Available water capacity: Low (About 5.8 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sands (pe16-20)

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 11 inches; loamy fine sand

H2—11 to 26 inches; loamy fine sand

H3—26 to 60 inches; loamy fine sand

Minor Components

Unnamed Hydric Soils

069RN—Richfield silt loam, 1 to 3 percent slopes

Map Unit Composition

Richfield: 100 percent

Component Descriptions

Richfield

MLRA: 72 - Central High Tableland

Landform: Plain on tableland

Parent material: Loess

Slope: 1 to 3 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 10.7 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Loamy Upland (pe16-20)

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 6 inches; silt loam

H2—6 to 19 inches; silty clay loam

H3—19 to 60 inches; silt loam

Minor Components

Ness

069SA—Satanta loam, 0 to 1 percent slopes

Map Unit Composition

Satanta: 100 percent

Component Descriptions

Satanta

MLRA: 72 - Central High Tableland

Landform: Sand sheet on paleoterrace on tableland

Parent material: Loamy eolian deposits

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Moderate (About 8.9 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe16-20)

Land capability (irrigated): 1

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 10 inches; loam

H2—10 to 32 inches; clay loam

H3—32 to 50 inches; silt loam

Minor Components

Ness

069SB—Satanta loam, 1 to 3 percent slopes

Map Unit Composition

Satanta: 100 percent

Component Descriptions

Satanta

MLRA: 72 - Central High Tableland

Landform: Sand sheet on paleoterrace on tableland

Parent material: Loamy eolian deposits

Slope: 1 to 3 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Moderate (About 8.9 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe16-20)

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 10 inches; loam

H2—10 to 32 inches; clay loam

H3—32 to 50 inches; silt loam

069UB—Ulysses silt loam, 1 to 3 percent slopes

Map Unit Composition

Ulysses: 100 percent

Component Descriptions

Ulysses

MLRA: 72 - Central High Tableland

Landform: Ridge on upland

Parent material: Fine-silty calcareous loess

Slope: 1 to 3 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 12.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe16-20)

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 7 inches; silt loam

H2—7 to 25 inches; silt loam

H3—25 to 60 inches; silt loam

069UC—Ulysses silt loam, 3 to 6 percent slopes

Map Unit Composition

Ulysses: 100 percent

Component Descriptions

Ulysses

MLRA: 72 - Central High Tableland

Landform: Plain on tableland

Parent material: Loess

Slope: 3 to 6 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 12.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe16-20)

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 6 inches; silt loam

H2—6 to 16 inches; silty clay loam

H3—16 to 60 inches; silt loam

083HO—Hord silty clay loam, rarely flooded

Map Unit Composition

Hord: 100 percent

Component Descriptions

Hord

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Silty alluvium

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Rare

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Loamy Terrace (pe20-26)

Land capability (irrigated): 1

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 12 inches; silty clay loam

H2—12 to 37 inches; silty clay loam

H3—37 to 60 inches; silty clay loam

083KP—Kim-Penden silty clay loams, 3 to 6 percent slopes, eroded

Map Unit Composition

Kim: 60 percent

Penden: 40 percent

Component Descriptions

Kim

MLRA: 73 - Rolling Plains and Breaks

Landform: Alluvial fan on breaks, fan remnant on breaks

Parent material: Sandy and/or loamy alluvium

Slope: 3 to 6 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 10.1 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Limy Upland (pe20-26)

Land capability (irrigated): 3e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 4 inches; silty clay loam

H2—4 to 60 inches; clay loam

Penden

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Residuum

Slope: 3 to 6 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.1 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Limy Upland (pe20-26)

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 16 inches; silty clay loam

H2—16 to 38 inches; clay loam

H3—38 to 60 inches; clay loam

083RZ—Bridgeport silty clay loam, 2 to 5 percent slopes

Map Unit Composition

Bridgeport: 100 percent

Component Descriptions

Bridgeport

MLRA: 72 - Central High Tableland

Landform: Flood plain on river valley

Parent material: Silty alluvium

Slope: 2 to 5 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.3 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 22 inches; silty clay loam

H2—22 to 60 inches; silty clay loam

097AT—Attica loamy fine sand, 1 to 4 percent slopes

Map Unit Composition

Attica: 100 percent

Component Descriptions

Attica

MLRA: -

Landform: Dune on paleoterrace on river valley

Parent material: Eolian deposits

Slope: 1 to 4 percent

Drainage class: Well drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 7.7 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sandy (pe21-28)

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 10 inches; loamy fine sand

H2—10 to 30 inches; fine sandy loam

H3—30 to 60 inches; fine sandy loam

Minor Components

Carwile

Unnamed Wet Soils

Phase: Sandy, Depression

Unnamed Wet Soils

Phase: Sandy, Drainageway

097CO—Coly silt loam, 4 to 9 percent slopes

Map Unit Composition

Coly: 100 percent

Component Descriptions

Coly

MLRA: 73 - Rolling Plains and Breaks

Landform: Hillslope on tableland

Parent material: Calcareous loess

Slope: 4 to 9 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Limy Upland (pe20-25)

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 5 inches; silt loam

H2—5 to 60 inches; silt loam

Minor Components

Unnamed Wet Soils

Phase: Loamy, Drainageway

097CT—Coly-Tobin silt loams, 0 to 20 percent slopes

Map Unit Composition

Coly: 70 percent

Tobin: 30 percent

Component Descriptions

Coly

MLRA: 73 - Rolling Plains and Breaks

Landform: Hillslope on tableland

Parent material: Calcareous loess

Slope: 9 to 20 percent

Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe20-25)
Land capability (nonirrigated): 6e

Typical Profile:
 H1—0 to 5 inches; silt loam
 H2—5 to 60 inches; silt loam

Tobin

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Frequent
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe20-25)
Land capability (nonirrigated): 5w

Typical Profile:
 H1—0 to 25 inches; silt loam
 H2—25 to 32 inches; silt loam
 H3—32 to 60 inches; silt loam

Minor Components

Unnamed Wet Soils

Phase: Loamy, Drainageway

119OZ—Otero-Manter fine sandy loams, 3 to 6 percent slopes

Map Unit Composition

Otero: 60 percent
 Manter: 40 percent

Component Descriptions

Otero

MLRA: 72 - Central High Tableland
Landform: Fan remnant on breaks
Parent material: Sandy and/or loamy alluvium
Slope: 3 to 6 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: High (About 9.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Sandy (pe20-25)
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical Profile:
 H1—0 to 8 inches; fine sandy loam
 H2—8 to 60 inches; fine sandy loam

Manter

MLRA: 72 - Central High Tableland
Landform: Sand sheet on paleoterrace on tableland
Parent material: Loamy eolian deposits
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 7.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Sandy (pe20-25)
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical Profile:
 H1—0 to 9 inches; fine sandy loam
 H2—9 to 23 inches; fine sandy loam
 H3—23 to 60 inches; loamy fine sand

119PR—Pratt Soils, 0 to 5 percent slopes

Map Unit Composition

Pratt: 100 percent

Component Descriptions

Pratt

MLRA: 73 - Rolling Plains and Breaks

Landform: Dune on paleoterrace on river valley

Parent material: Sandy eolian deposits

Slope: 0 to 5 percent

Drainage class: Well drained

Slowest permeability: Rapid (About 6.00 in/hr)

Available water capacity: Low (About 5.6 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sands (pe17-20)

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 8 inches; loamy fine sand

H2—8 to 24 inches; loamy fine sand

H3—24 to 60 inches; loamy fine sand

Minor Components

Unnamed Hydric Soils

119RX—Roxbury silt loam, rarely flooded

Map Unit Composition

Roxbury: 100 percent

Component Descriptions

Roxbury

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Calcareous fine-silty alluvium

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.4 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Rare

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Terrace (pe20-26)

Land capability (irrigated): 1

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 20 inches; silt loam

H2—20 to 60 inches; silty clay loam

Ad—Tivoli fine sand, 4 to 20 percent slopes, eroded

Map Unit Composition

Tivoli: 100 percent

Component Descriptions

Tivoli

MLRA: 73 - Rolling Plains and Breaks

Landform: Dune on paleoterrace on river valley

Parent material: Sandy eolian deposits

Slope: 4 to 20 percent

Drainage class: Excessively drained

Slowest permeability: Rapid (About 6.00 in/hr)

Available water capacity: Low (About 4.2 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Choppy Sands (pe20-26)

Land capability (nonirrigated): 7e

Typical Profile:

H1—0 to 6 inches; fine sand

H2—6 to 60 inches; fine sand

An—Roxbury silt loam, channeled

Map Unit Composition

Roxbury: 100 percent

Component Descriptions

Roxbury

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Calcareous fine-silty alluvium

Slope: 0 to 2 percent

Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 13.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Frequent
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe20-26)
Land capability (nonirrigated): 5w

Typical Profile:
 H1—0 to 20 inches; silt loam
 H2—20 to 52 inches; silt loam
 H3—52 to 60 inches; silt loam

ARR—Arkansas River

Map Unit Composition

Arkansas River: 100 percent

Component Descriptions

Arkansas River

MLRA: 73 - Rolling Plains and Breaks
Slope: 0 to 4 percent
Slowest permeability: Rapid (About 6.00 in/hr)
Available water capacity: Very low (About 2.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Frequent
Depth to seasonal water saturation: About 0 to 24 inches
Land capability (nonirrigated): 8w

As—Lesho-Lesho, Saline clay loams, Occasionally flooded

Map Unit Composition

Lesho: 75 percent
 Lesho, Saline: 25 percent

Component Descriptions

Lesho

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Moderate (About 7.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 24 to 48 inches
Runoff class: Low
Ecological site: Loamy Lowland (pe20-26)
Land capability (nonirrigated): 3w

Typical Profile:
 H1—0 to 18 inches; clay loam
 H2—18 to 32 inches; clay loam
 H3—32 to 60 inches; sand

Lesho, Saline

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Moderate (About 7.5 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 24 to 48 inches
Runoff class: Low
Ecological site: Saline Subirrigated (pe20-26)
Land capability (irrigated): 3s
Land capability (nonirrigated): 4s

Typical Profile:
 H1—0 to 19 inches; clay loam
 H2—19 to 35 inches; clay loam
 H3—35 to 60 inches; sand

Minor Components

Unnamed Hydric Soils

Slope: 0 to 2 percent

Bc—Bippus clay loam, 2 to 5 percent slopes

Map Unit Composition

Bippus: 100 percent

Component Descriptions

Bippus

MLRA: 73 - Rolling Plains and Breaks

Landform: River valley, alluvial fan

Parent material: Loamy alluvium

Slope: 2 to 5 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 9.8 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 17 inches; clay loam

H2—17 to 62 inches; clay loam

BOP—Borrow Pits

Br—Fluents

Map Unit Composition

Fluents: 100 percent

Component Descriptions

Fluents

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood-plain step on river valley

Parent material: Alluvium

Slope: 0 to 30 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 12.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Land capability (nonirrigated): 6w

Typical Profile:

H1—0 to 6 inches; silt loam

H2—6 to 60 inches; loam

Ca—Canadian fine sandy loam, rarely flooded

Map Unit Composition

Canadian: 100 percent

Component Descriptions

Canadian

MLRA: 78 - Central Rolling Red Plains

Landform: Flood plain on river valley

Parent material: Loamy alluvium

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 7.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Rare

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy Terrace (pe20-26)

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 15 inches; fine sandy loam

H2—15 to 38 inches; fine sandy loam

H3—38 to 50 inches; loamy fine sand

Da—Dale silt loam, rarely flooded

Map Unit Composition

Dale: 100 percent

Component Descriptions

Dale

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Silty alluvium

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.3 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Loamy Terrace (pe20-26)
Land capability (nonirrigated): 2c

Typical Profile:
 H1—0 to 24 inches; silt loam
 H2—24 to 60 inches; silty clay loam

Dh—Dale And Humbarger clay loams, rarely flooded

Map Unit Composition

Dale: 50 percent
 Humbarger: 50 percent

Component Descriptions

Dale

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Silty alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Loamy Terrace (pe20-26)
Land capability (nonirrigated): 2c

Typical Profile:
 H1—0 to 24 inches; clay loam
 H2—24 to 60 inches; silty clay loam

Humbarger

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 8.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Loamy Terrace (pe20-26)
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical Profile:
 H1—0 to 22 inches; clay loam
 H2—22 to 54 inches; clay loam

DI—Dalhart-Lubbock complex, 0 to 5 percent slopes

Map Unit Composition

Dalhart: 70 percent
 Lubbock: 30 percent

Component Descriptions

Dalhart

MLRA: 73 - Rolling Plains and Breaks
Landform: Sand sheet on paleoterrace on tableland
Parent material: Loamy eolian deposits
Slope: 1 to 5 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Sandy (pe20-26)
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:
 H1—0 to 7 inches; fine sandy loam
 H2—7 to 44 inches; sandy clay loam
 H3—44 to 60 inches; clay loam

Lubbock

MLRA: 73 - Rolling Plains and Breaks

Landform: Paleoterrace
Parent material: Silty alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Moderate (About 6.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe20-26)
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical Profile:
 H1—0 to 8 inches; clay loam
 H2—8 to 44 inches; silty clay loam

Minor Components **Ness**

GRP—Gravel Pit

Ha—Harney silt loam, 0 to 1 percent slopes

Map Unit Composition

Harney: 100 percent

Component Descriptions

Harney
MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical Profile:
 H1—0 to 5 inches; silt loam
 H2—5 to 33 inches; silty clay
 H3—33 to 60 inches; silty clay loam

Minor Components **Ness**

Hb—Harney silt loam, 1 to 3 percent slopes

Map Unit Composition

Harney: 100 percent

Component Descriptions

Harney
MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 11.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe20-26)
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:
 H1—0 to 6 inches; silt loam
 H2—6 to 30 inches; silty clay
 H3—30 to 66 inches; silty clay loam

Hd—Holdrege fine sandy loam, 1 to 3 percent slopes

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Calcareous loess

Slope: 1 to 3 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.8 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 11 inches; very fine sandy loam

H2—11 to 33 inches; silty clay loam

H3—33 to 48 inches; silty clay loam

H4—48 to 66 inches; silt loam

Hg—Holdrege loam, 0 to 1 percent slopes

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Calcareous loess

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.8 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 1

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 11 inches; loam

H2—11 to 33 inches; silty clay loam

H3—33 to 48 inches; silty clay loam

H4—48 to 66 inches; silt loam

Minor Components

Ness

Ho—Holdrege silt loam, 0 to 1 percent slopes

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on upland

Parent material: Calcareous loess

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.4 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 1

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 14 inches; silt loam

H2—14 to 25 inches; silty clay loam

H3—25 to 30 inches; silt loam

H4—30 to 60 inches; silt loam

Minor Components

Ness

Hs—Holdrege silt loam, 1 to 3 percent slopes

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Calcareous loess

Slope: 1 to 3 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 11 inches; silt loam

H2—11 to 33 inches; silty clay loam

H3—33 to 48 inches; silt loam

H4—48 to 66 inches; silt loam

Depth to seasonal water saturation: About 0 to 0 inches

Runoff class: Negligible

Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 72 inches; variable

General Considerations: This map unit was formerly labeled as an Intermittent Water spot symbol. These depressional areas contain soils that are occasionally ponded for long duration.

La—Las Animas sandy loam, occasionally flooded

Map Unit Composition

Las Animas: 100 percent

Component Descriptions

Las Animas

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Loamy and/or sandy alluvium

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 6.8 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Negligible

Ecological site: Saline Subirrigated (pe20-26)

Land capability (irrigated): 3w

Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 11 inches; sandy loam, sandy loam

H2—11 to 32 inches; sandy loam

H3—32 to 60 inches; stratified gravelly sand

INL—Aquolls

Map Unit Composition

Aquolls: 100 percent

Component Descriptions

Aquolls

MLRA: 73 - Rolling Plains and Breaks

Landform: Depression on terrace on river valley

Parent material: Alluvium

Slope: 0 to 1 percent

Drainage class: Very poorly drained

Flooding hazard: None

Ponding hazard: Occasional

Minor Components

Unnamed Hydric Soils

Lc—Las Animas-Lincoln complex, occasionally flooded

Map Unit Composition

Las Animas: 80 percent
Lincoln: 20 percent

Component Descriptions

Las Animas

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Loamy and/or sandy alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 6.4 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 18 to 36 inches
Runoff class: Negligible
Ecological site: Saline Subirrigated (pe20-26)
Land capability (irrigated): 3w
Land capability (nonirrigated): 4w

Typical Profile:

H1—0 to 11 inches; sandy loam
H2—11 to 32 inches; stratified loamy fine sand to very fine sandy loam
H3—32 to 60 inches; stratified coarse sand to sand

Lincoln

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Loamy and/or sandy alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid (About 6.00 in/hr)
Available water capacity: Moderate (About 6.8 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 60 to 72 inches
Runoff class: Negligible
Ecological site: Sandy Lowland (pe20-26)
Land capability (nonirrigated): 6s

Typical Profile:

H1—0 to 6 inches; sand

H2—6 to 60 inches; stratified fine sand to clay loam

Minor Components Unnamed Hydric Soils

Ln—Las Animas-Tivoli complex, 0 to 6 percent slopes, occasionally flooded

Map Unit Composition

Las Animas: 50 percent
Tivoli: 50 percent

Component Descriptions

Las Animas

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Loamy and/or sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 6.4 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 18 to 36 inches
Runoff class: Negligible
Ecological site: Saline Subirrigated (pe20-26)
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 11 inches; sandy loam
H2—11 to 32 inches; stratified loamy fine sand to very fine sandy loam
H3—32 to 60 inches; stratified coarse sand to sand

Tivoli

MLRA: 73 - Rolling Plains and Breaks
Landform: Dune on paleoterrace on river valley
Parent material: Sandy eolian deposits
Slope: 5 to 6 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (About 6.00 in/hr)
Available water capacity: Low (About 4.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sands (pe20-26)

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 6 inches; fine sand

H2—6 to 60 inches; fine sand

Ls—Leshara clay loam, occasionally flooded

Map Unit Composition

Leshara: 100 percent

Component Descriptions

Leshara

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Loamy alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 9.3 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Low

Ecological site: Subirrigated (pe20-26)

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 26 inches; clay loam

H2—26 to 45 inches; clay loam

H3—45 to 60 inches; coarse sand

Minor Components

Unnamed Hydric Soils

Lt—Lesho clay loam, occasionally flooded

Map Unit Composition

Lesho: 100 percent

Component Descriptions

Lesho

MLRA: 73 - Rolling Plains and Breaks

Landform: River valley on flood plain

Parent material: Loamy alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: Moderate (About 6.1 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 24 to 48 inches

Runoff class: Low

Ecological site: Saline Subirrigated (pe16-20)

Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 14 inches; clay loam

H2—14 to 25 inches; clay loam

H3—25 to 60 inches; sand

Minor Components

Sweetwater

Lu—Lincoln Soils, frequently flooded

Map Unit Composition

Lincoln: 100 percent

Component Descriptions

Lincoln

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Loamy and/or sandy alluvium

Slope: 0 to 3 percent

Drainage class: Somewhat excessively drained

Slowest permeability: Rapid (About 6.00 in/hr)

Available water capacity: Moderate (About 6.3 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: About 60 to 72 inches

Runoff class: Negligible

Ecological site: Sandy Lowland (pe20-26)
Land capability (nonirrigated): 7w

Typical Profile:

H1—0 to 6 inches; sand
 H2—6 to 60 inches; stratified sand to gravel

Minor Components
Unnamed Hydric Soils

M-W—Miscellaneous Water

Ma—Penden clay loam, 0 to 1 percent slopes

Map Unit Composition

Penden: 100 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Residuum
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 8.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Limy Upland (pe20-26)
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 17 inches; clay loam
 H2—17 to 46 inches; clay loam

Mb—Penden clay loam, 1 to 3 percent slopes

Map Unit Composition

Penden: 100 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Residuum
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 8.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe20-26)
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 17 inches; clay loam
 H2—17 to 46 inches; clay loam

Mc—Penden clay loam, 1 to 3 percent slopes, eroded

Map Unit Composition

Penden: 100 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Residuum
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Moderate (About 8.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe20-26)
Land capability (irrigated): 2e
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 17 inches; clay loam
H2—17 to 46 inches; clay loam

Md—Penden clay loam, 3 to 6 percent slopes

Map Unit Composition

Penden: 100 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Residuum
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.4 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe20-26)
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 14 inches; clay loam
H2—14 to 32 inches; clay loam
H3—32 to 60 inches; clay loam

Mf—Penden And Campus Soils, 3 to 6 percent slopes, eroded

Map Unit Composition

Penden: 85 percent
Campus: 15 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Residuum
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 8.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe20-26)
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 17 inches; clay loam
H2—17 to 46 inches; clay loam

Campus

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Old calcareous fine-loamy alluvium and/or calcareous fine-loamy residuum
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 4.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe20-26)
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 7 inches; clay loam
 H2—7 to 19 inches; clay loam
 H3—19 to 22 inches; clay loam
 R—22 to 23 inches; unweathered bedrock

Mh—Penden-Tobin complex, 0 to 15 percent slopes

Map Unit Composition

Penden: 70 percent
 Tobin: 30 percent

Component Descriptions

Penden

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Residuum
Slope: 0 to 15 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 8.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe20-26)
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 17 inches; clay loam
 H2—17 to 46 inches; clay loam

Tobin

MLRA: 73 - Rolling Plains and Breaks
Landform: Flood plain on river valley
Parent material: Silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Frequent
Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Loamy Lowland (pe20-26)
Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 14 inches; silt loam
 H2—14 to 66 inches; silty clay loam

Mn—Campus clay loam, 0 to 3 percent slopes

Map Unit Composition

Campus: 100 percent

Component Descriptions

Campus

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Old calcareous fine-loamy alluvium and/or calcareous fine-loamy residuum
Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 4.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe20-26)
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 7 inches; clay loam
 H2—7 to 19 inches; clay loam
 H3—19 to 22 inches; clay loam
 R—22 to 23 inches; unweathered bedrock

Mp—Campus-Canlon complex, 3 to 40 percent slopes

Map Unit Composition

Campus: 70 percent
Canlon: 30 percent

Component Descriptions

Campus

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Old calcareous fine-loamy alluvium and/or calcareous fine-loamy residuum

Slope: 3 to 15 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Low (About 4.2 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Limy Upland (pe20-26)

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; clay loam

H2—7 to 19 inches; clay loam

H3—19 to 22 inches; clay loam

R—22 to 23 inches; unweathered bedrock

Canlon

MLRA: 73 - Rolling Plains and Breaks

Landform: Break on tableland

Parent material: Calcareous loamy residuum weathered from sandstone

Slope: 3 to 40 percent

Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very low (About 2.3 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Shallow Limy (pe20-26)

Land capability (nonirrigated): 7s

Typical Profile:

H1—0 to 5 inches; loam

H2—5 to 12 inches; clay loam

R—12 to 13 inches; unweathered bedrock

Of—Attica fine sandy loam, 0 to 2 percent slopes

Map Unit Composition

Attica: 100 percent

Component Descriptions

Attica

MLRA: 73 - Rolling Plains and Breaks, 79 - Great Bend Sand Plains

Landform: Dune on paleoterrace on river valley

Parent material: Eolian deposits

Slope: 0 to 2 percent

Drainage class: Well drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 6.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sandy (pe20-26)

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 14 inches; fine sandy loam

H2—14 to 45 inches; fine sandy loam

H3—45 to 50 inches; loamy fine sand

Or—Attica fine sandy loam, 2 to 8 percent slopes

Map Unit Composition

Attica: 100 percent

Component Descriptions

Attica

MLRA: 73 - Rolling Plains and Breaks, 79 - Great Bend Sand Plains

Landform: Dune on paleoterrace on river valley

Parent material: Eolian deposits

Slope: 2 to 8 percent

Drainage class: Well drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 6.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sandy (pe20-26)

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 14 inches; fine sandy loam

H2—14 to 45 inches; fine sandy loam

H3—45 to 50 inches; loamy fine sand

Typical Profile:

H1—0 to 14 inches; fine sandy loam

H2—14 to 45 inches; fine sandy loam

H3—45 to 50 inches; loamy fine sand

Carwile

MLRA: 73 - Rolling Plains and Breaks, 79 - Great Bend Sand Plains

Landform: Depression on paleoterrace

Parent material: Clayey alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: Moderate (About 8.6 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 0 to 0 inches

Runoff class: Medium

Ecological site: Sandy (pe20-26)

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 11 inches; fine sandy loam

H2—11 to 28 inches; sandy clay loam

H3—28 to 48 inches; clay

H4—48 to 60 inches; clay

Os—Attica-Carwile complex, 0 to 4 percent slopes**Map Unit Composition**

Attica: 60 percent

Carwile: 40 percent

Component Descriptions**Attica**

MLRA: 73 - Rolling Plains and Breaks, 79 - Great Bend Sand Plains

Landform: Dune on paleoterrace on river valley

Parent material: Eolian deposits

Slope: 0 to 4 percent

Drainage class: Well drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 6.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sandy (pe20-26)

Land capability (nonirrigated): 3e

Ot—Otero fine sandy loam, 2 to 6 percent slopes**Map Unit Composition**

Otero: 100 percent

Component Descriptions**Otero**

MLRA: 73 - Rolling Plains and Breaks

Landform: Fan remnant on breaks

Parent material: Sandy and/or loamy alluvium

Slope: 2 to 6 percent

Drainage class: Well drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 8.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sandy (pe20-26)

Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 9 inches; fine sandy loam
 H2—9 to 60 inches; loamy fine sand

Po—Canlon Soils, 15 to 40 percent slopes

Map Unit Composition

Canlon: 100 percent

Component Descriptions

Canlon

MLRA: 73 - Rolling Plains and Breaks
Landform: Break on tableland
Parent material: Calcareous loamy residuum weathered from sandstone
Slope: 15 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very low (About 2.3 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Shallow Limy (pe20-26)
Land capability (nonirrigated): 7s

Typical Profile:

H1—0 to 5 inches; loam
 H2—5 to 12 inches; gravelly loam
 R—12 to 13 inches; unweathered bedrock

Pr—Pratt loamy fine sand, 3 to 10 percent slopes

Map Unit Composition

Pratt: 100 percent

Component Descriptions

Pratt

MLRA: 73 - Rolling Plains and Breaks
Landform: Dune on paleoterrace on river valley
Parent material: Sandy eolian deposits
Slope: 3 to 10 percent
Drainage class: Well drained
Slowest permeability: Rapid (About 6.00 in/hr)
Available water capacity: Low (About 5.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Sands (pe20-26)
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 9 inches; loamy fine sand
 H2—9 to 28 inches; loamy fine sand
 H3—28 to 54 inches; loamy fine sand

Minor Components

Unnamed Hydric Soils

Pt—Pratt-Tivoli loamy fine sands, 4 to 15 percent slopes

Map Unit Composition

Pratt: 60 percent
 Tivoli: 40 percent

Component Descriptions

Pratt

MLRA: 73 - Rolling Plains and Breaks
Landform: Dune on paleoterrace on river valley
Parent material: Sandy eolian deposits
Slope: 4 to 15 percent
Drainage class: Well drained
Slowest permeability: Rapid (About 6.00 in/hr)
Available water capacity: Low (About 5.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Sands (pe20-26)
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 9 inches; loamy fine sand
 H2—9 to 28 inches; loamy fine sand
 H3—28 to 54 inches; loamy fine sand

Tivoli

MLRA: 73 - Rolling Plains and Breaks

Landform: Dune on paleoterrace on river valley

Parent material: Sandy eolian deposits

Slope: 5 to 15 percent

Drainage class: Excessively drained

Slowest permeability: Rapid (About 6.00 in/hr)

Available water capacity: Low (About 4.4 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sands (pe20-26)

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 6 inches; loamy fine sand
 H2—6 to 60 inches; fine sand

Ra—Ness clay**Map Unit Composition**

Ness: 100 percent

Component Descriptions**Ness**

MLRA: 73 - Rolling Plains and Breaks

Landform: Playa on tableland

Parent material: Clayey alluvium and/or eolian deposits

Slope: 0 to 1 percent

Drainage class: Poorly drained

Slowest permeability: Very slow (About 0.00 in/hr)

Available water capacity: Moderate (About 8.2 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 0 to 0 inches

Runoff class: Negligible

Ecological site: Lakebed (pe20-26)

Land capability (nonirrigated): 6w

Typical Profile:

H1—0 to 40 inches; clay

H2—40 to 63 inches; silty clay loam

Sb—Pratt-Humbarger complex, 0 to 15 percent slopes**Map Unit Composition**

Pratt: 70 percent

Humbarger: 30 percent

Component Descriptions**Pratt**

MLRA: 73 - Rolling Plains and Breaks

Landform: Dune on paleoterrace on river valley

Parent material: Sandy eolian deposits

Slope: 2 to 10 percent

Drainage class: Well drained

Slowest permeability: Rapid (About 6.00 in/hr)

Available water capacity: Moderate (About 7.1 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sands (pe20-26)

Land capability (irrigated): 4e

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 12 inches; loamy fine sand
 H2—12 to 40 inches; fine sandy loam
 H3—40 to 60 inches; loamy fine sand

Humbarger

MLRA: 73 - Rolling Plains and Breaks

Landform: Flood plain on river valley

Parent material: Loamy alluvium

Slope: 0 to 2 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 10.4 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Loamy Lowland (pe20-26)

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 22 inches; silty clay loam
 H2—22 to 30 inches; clay loam
 H3—30 to 60 inches; loam

Sp—Spearville silty clay loam, 0 to 1 percent slopes**Map Unit Composition**

Spearville: 100 percent

Component Descriptions**Spearville**

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Clay Upland (pe20-26)
Land capability (irrigated): 2s
Land capability (nonirrigated): 2s

Typical Profile:

H1—0 to 6 inches; silty clay loam
 H2—6 to 21 inches; silty clay
 H3—21 to 26 inches; silty clay loam
 H4—26 to 52 inches; silty clay loam

Minor Components**Ness****Sr—Spearville complex, 1 to 3 percent slopes, eroded****Map Unit Composition**

Spearville: 100 percent

Component Descriptions**Spearville**

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Clay Upland (pe20-26)
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 6 inches; silty clay loam
 H2—6 to 21 inches; silty clay
 H3—21 to 26 inches; silty clay loam
 H4—26 to 52 inches; silty clay loam

Tv—Tivoli fine sand, 5 to 20 percent slopes**Map Unit Composition**

Tivoli: 100 percent

Component Descriptions**Tivoli**

MLRA: 73 - Rolling Plains and Breaks
Landform: Dune on paleoterrace on river valley
Parent material: Sandy eolian deposits
Slope: 5 to 20 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (About 6.00 in/hr)
Available water capacity: Low (About 4.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Choppy Sands (pe20-26)
Land capability (nonirrigated): 7e

Typical Profile:

H1—0 to 6 inches; fine sand
 H2—6 to 60 inches; fine sand

Ua—Uly silt loam, 1 to 3 percent slopes**Map Unit Composition**

Uly: 100 percent

Component Descriptions**Uly**

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Loess

Slope: 1 to 3 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 8 inches; silt loam

H2—8 to 21 inches; silt loam

H3—21 to 60 inches; silt loam

Ub—Uly silt loam, 3 to 6 percent slopes**Map Unit Composition**

Uly: 100 percent

Component Descriptions**Uly**

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Loess

Slope: 3 to 6 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Loamy Upland (pe20-26)

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 8 inches; silt loam

H2—8 to 21 inches; silty clay loam

H3—21 to 60 inches; silt loam

Uc—Uly-Coly silt loams, 3 to 6 percent slopes, eroded**Map Unit Composition**

Uly: 70 percent

Coly: 30 percent

Component Descriptions**Uly**

MLRA: 73 - Rolling Plains and Breaks

Landform: Plain on tableland

Parent material: Loess

Slope: 3 to 6 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 12.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Loamy Upland (pe20-26)

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 6 inches; silt loam

H2—6 to 19 inches; silt loam

H3—19 to 60 inches; silt loam

Coly

MLRA: 73 - Rolling Plains and Breaks

Landform: Hillslope on tableland

Parent material: Loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 12.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe20-26)
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 6 inches; silt loam
H2—6 to 60 inches; silt loam

Uh—Uly-Harney silt loams, 1 to 3 percent slopes

Map Unit Composition

Uly: 60 percent
Harney: 40 percent

Component Descriptions

Uly

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe20-26)
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 9 inches; silt loam
H2—9 to 17 inches; silt loam
H3—17 to 71 inches; silt loam

Harney

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 11.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe20-26)
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 6 inches; silt loam
H2—6 to 30 inches; silty clay
H3—30 to 66 inches; silty clay loam

Un—Uly-Harney complex, 1 to 3 percent slopes, eroded

Map Unit Composition

Uly: 70 percent
Harney: 30 percent

Component Descriptions

Uly

MLRA: 73 - Rolling Plains and Breaks
Landform: Plain on tableland
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe20-26)
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 9 inches; silt loam
 H2—9 to 17 inches; silt loam
 H3—17 to 71 inches; silt loam

Harney*MLRA:* 73 - Rolling Plains and Breaks*Landform:* Plain on tableland*Parent material:* Loess*Slope:* 1 to 3 percent*Drainage class:* Well drained*Slowest permeability:* Moderately slow (About 0.20 in/hr)*Available water capacity:* High (About 11.0 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Medium*Ecological site:* Loamy Upland (pe20-26)*Land capability (nonirrigated):* 3e*Typical Profile:*

H1—0 to 6 inches; silt loam
 H2—6 to 30 inches; silty clay
 H3—30 to 66 inches; silty clay loam

Ecological site: Loamy Upland (pe20-26)*Land capability (irrigated):* 3e*Land capability (nonirrigated):* 4e*Typical Profile:*

H1—0 to 9 inches; silt loam
 H2—9 to 17 inches; silt loam
 H3—17 to 71 inches; silt loam

Tobin*MLRA:* 73 - Rolling Plains and Breaks*Landform:* Flood plain on river valley*Parent material:* Silty alluvium*Slope:* 0 to 2 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* Very high (About 12.2 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* Occasional*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Negligible*Ecological site:* Loamy Lowland (pe20-26)*Land capability (nonirrigated):* 2w*Typical Profile:*

H1—0 to 14 inches; silt loam
 H2—14 to 66 inches; silty clay loam

Up—Uly-Tobin complex, 0 to 6 percent slopes**Map Unit Composition**

Uly: 75 percent
 Tobin: 25 percent

Component Descriptions**Uly***MLRA:* 73 - Rolling Plains and Breaks*Landform:* Plain on tableland*Parent material:* Loess*Slope:* 3 to 6 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* Very high (About 12.1 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Medium**W—Water**

General Considerations: Water includes streams, lakes, ponds, and estuaries. These areas are covered with water in most years, at least during the period that is warm enough for plants to grow. Many areas are covered throughout the year.

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in the following table. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in the "Acres and Proportionate Extent of Soils" table. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described in other tables in this document."

Map symbol	Mapunit name	Farmland Classification
025KB	Kingsdown fine sandy loam, 2 to 5 percent slopes	All areas are prime farmland
025SA	Satanta loam, 0 to 2 percent slopes	All areas are prime farmland
047HD	Harney-uly complex, 1 to 3 percent slopes	All areas are prime farmland
047HO	Hord silt loam, rarely flooded	All areas are prime farmland
069SA	Satanta loam, 0 to 1 percent slopes	All areas are prime farmland
069SB	Satanta loam, 1 to 3 percent slopes	All areas are prime farmland
083HO	Hord silty clay loam, rarely flooded	All areas are prime farmland
083RZ	Bridgeport silty clay loam, 2 to 5 percent slopes	All areas are prime farmland
119RX	Roxbury silt loam, rarely flooded	All areas are prime farmland
Bc	Bippus clay loam, 2 to 5 percent slopes	All areas are prime farmland
Da	Dale silt loam, rarely flooded	All areas are prime farmland
Dh	Dale and humbarger clay loams, rarely flooded	All areas are prime farmland
Ha	Harney silt loam, 0 to 1 percent slopes	All areas are prime farmland
Hb	Harney silt loam, 1 to 3 percent slopes	All areas are prime farmland
Hg	Holdrege loam, 0 to 1 percent slopes	All areas are prime farmland
Ho	Holdrege silt loam, 0 to 1 percent slopes	All areas are prime farmland
Hs	Holdrege silt loam, 1 to 3 percent slopes	All areas are prime farmland
Sp	Spearville silty clay loam, 0 to 1 percent slopes	All areas are prime farmland
Sr	Spearville complex, 1 to 3 percent slopes, eroded	All areas are prime farmland
Ua	Uly silt loam, 1 to 3 percent slopes	All areas are prime farmland
Ub	Uly silt loam, 3 to 6 percent slopes	All areas are prime farmland
069RN	Richfield silt loam, 1 to 3 percent slopes	Prime farmland if irrigated
069UB	Ulysses silt loam, 1 to 3 percent slopes	Prime farmland if irrigated
069UC	Ulysses silt loam, 3 to 6 percent slopes	Prime farmland if irrigated
Uh	Uly-harney silt loams, 1 to 3 percent slopes	Prime farmland if irrigated
Un	Uly-harney complex, 1 to 3 percent slopes, eroded	Prime farmland if irrigated

The "Soil Rating for Plant Growth, modified 1998" (SRPG) is a relative rating of the capacity of a soil to produce a specific plant under a defined management system. The index is determined from yield data on a few benchmark soils and is used to calculate yields, the net returns from crops, land assessment values, and taxes and to perform risk analysis when land management decisions are made. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Map symbol	Soil name	Crop Index
025KB	Kingsdown Fine Sandy Loam, 2 To 5 Percent Slopes-----	46
025PF	Penden Clay Loam, 2 To 7 Percent Slopes, Eroded-----	30
025PG	Penden Clay Loam, 7 To 15 Percent Slopes-----	27
025RF	Roxbury Silt Loam, Occasionally Flooded-----	56
025SA	Satanta Loam, 0 To 2 Percent Slopes-----	63
047BK	Coly-Tobin Silt Loams, 0 To 15 Percent Slopes-----	56
047HD	Harney-Uly Complex, 1 To 3 Percent Slopes-----	66
047HO	Hord Silt Loam, Rarely Flooded-----	72
047PA	Platte Soils, Occasionally Flooded-----	24
047ZE	Lesho Clay Loam, Saline, Occasionally Flooded-----	42
069AN	Bridgeport Silt Loam, Channeled-----	42
069LA	Las Animas-Lesho Complex, Alkali, Occasionally Flooded-----	31
069ME	Penden Clay Loam, 6 To 15 Percent Slopes-----	26
069PA	Pratt Loamy Fine Sand, 1 To 6 Percent Slopes-----	34
069RN	Richfield Silt Loam, 1 To 3 Percent Slopes-----	59
069SA	Satanta Loam, 0 To 1 Percent Slopes-----	64
069SB	Satanta Loam, 1 To 3 Percent Slopes-----	63
069UB	Ulysses Silt Loam, 1 To 3 Percent Slopes-----	53
069UC	Ulysses Silt Loam, 3 To 6 Percent Slopes-----	47
083HO	Hord Silty Clay Loam, Rarely Flooded-----	69
083KP	Kim-Penden Silty Clay Loams, 3 To 6 Percent Slopes, Eroded-----	37
083RZ	Bridgeport Silty Clay Loam, 2 To 5 Percent Slopes-----	54
097AT	Attica Loamy Fine Sand, 1 To 4 Percent Slopes-----	47
097CO	Coly Silt Loam, 4 To 9 Percent Slopes-----	54
097CT	Coly-Tobin Silt Loams, 0 To 20 Percent Slopes-----	46
119OZ	Otero-Manter Fine Sandy Loams, 3 To 6 Percent Slopes-----	42
119PR	Pratt Soils, 0 To 5 Percent Slopes-----	32
119RX	Roxbury Silt Loam, Rarely Flooded-----	56
ARR	Arkansas River-----	0
Ad	Tivoli Fine Sand, 4 To 20 Percent Slopes, Eroded-----	20
An	Roxbury Silt Loam, Channeled-----	45
As	Lesho-Lesho, Saline Clay Loams, Occasionally Flooded-----	41
BOP	Borrow Pits-----	0
Bc	Bippus Clay Loam, 2 To 5 Percent Slopes-----	45
Br	Fluvents-----	0
Ca	Canadian Fine Sandy Loam, Rarely Flooded-----	54
Da	Dale Silt Loam, Rarely Flooded-----	60
Dh	Dale And Humbarger Clay Loams, Rarely Flooded-----	53
Dl	Dalhart-Lubbock Complex, 0 To 5 Percent Slopes-----	55
GRP	Gravel Pit-----	18
Ha	Harney Silt Loam, 0 To 1 Percent Slopes-----	65
Hb	Harney Silt Loam, 1 To 3 Percent Slopes-----	66
Hd	Holdrege Fine Sandy Loam, 1 To 3 Percent Slopes-----	68
Hg	Holdrege Loam, 0 To 1 Percent Slopes-----	67
Ho	Holdrege Silt Loam, 0 To 1 Percent Slopes-----	67
Hs	Holdrege Silt Loam, 1 To 3 Percent Slopes-----	67
INL	Aquolls-----	12
La	Las Animas Sandy Loam, Occasionally Flooded-----	36
Lc	Las Animas-Lincoln Complex, Occasionally Flooded-----	33
Ln	Las Animas-Tivoli Complex, 0 To 6 Percent Slopes, Occasionally Flooded---	28
Ls	Leshara Clay Loam, Occasionally Flooded-----	58
Lt	Lesho Clay Loam, Occasionally Flooded-----	37
Lu	Lincoln Soils, Frequently Flooded-----	22
M-W	Miscellaneous Water-----	0
Ma	Penden Clay Loam, 0 To 1 Percent Slopes-----	31
Mb	Penden Clay Loam, 1 To 3 Percent Slopes-----	31
Mc	Penden Clay Loam, 1 To 3 Percent Slopes, Eroded-----	31
Md	Penden Clay Loam, 3 To 6 Percent Slopes-----	30
Mf	Penden And Campus Soils, 3 To 6 Percent Slopes, Eroded-----	28
Mh	Penden-Tobin Complex, 0 To 15 Percent Slopes-----	34
Mn	Campus Clay Loam, 0 To 3 Percent Slopes-----	19
Mp	Campus-Canlon Complex, 3 To 40 Percent Slopes-----	13
Of	Attica Fine Sandy Loam, 0 To 2 Percent Slopes-----	48
Or	Attica Fine Sandy Loam, 2 To 8 Percent Slopes-----	46
Os	Attica-Carwile Complex, 0 To 4 Percent Slopes-----	36
Ot	Otero Fine Sandy Loam, 2 To 6 Percent Slopes-----	39
Po	Canlon Soils, 15 To 40 Percent Slopes-----	1
Pr	Pratt Loamy Fine Sand, 3 To 10 Percent Slopes-----	32
Pt	Pratt-Tivoli Loamy Fine Sands, 4 To 15 Percent Slopes-----	27
Ra	Ness Clay-----	10
Sb	Pratt-Humbarger Complex, 0 To 15 Percent Slopes-----	41
Sp	Spearville Silty Clay Loam, 0 To 1 Percent Slopes-----	59
Sr	Spearville Complex, 1 To 3 Percent Slopes, Eroded-----	58
Tv	Tivoli Fine Sand, 5 To 20 Percent Slopes-----	20
Ua	Uly Silt Loam, 1 To 3 Percent Slopes-----	64
Ub	Uly Silt Loam, 3 To 6 Percent Slopes-----	61
Uc	Uly-Coly Silt Loams, 3 To 6 Percent Slopes, Eroded-----	55
Uh	Uly-Harney Silt Loams, 1 To 3 Percent Slopes-----	65
Un	Uly-Harney Complex, 1 To 3 Percent Slopes, Eroded-----	64
Up	Uly-Tobin Complex, 0 To 6 Percent Slopes-----	61
W	Water-----	0

Ford County, Kansas: Maintenance needed
Field Office Thunderbook: Soils Properties for Conservation Planning

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "K", "Kf", "Wind Erodibility Group" and "Wind Erodibility Index" apply only to the surface layer)

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro-logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
025KB:KINGSDOWN-	100	3e-	3e	All areas are prime farmland	B	Sandy (pe20-25)	3	.20	.20	5	3	86
025PF:PENDEN----	100	N/A	4e	Not prime farmland	B	Limy Upland (pe20-25)	5	.28	.28	5	4L	86
025PG:PENDEN----	100	N/A	6e	Not prime farmland	B	Limy Upland (pe20-25)	5	.28	.28	5	4L	86
025RF:ROXBURY---	100	2w-	2w	Not prime farmland	B	Loamy Lowland (pe20-25)	5	.32	.32	5	4L	86
025SA:SATANTA---	100	2e-	2c	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.28	.28	5	6	48
047BK:COLY-----	75	4e-	4e	Not prime farmland	B	Limy Upland (pe20-26)	5	.43	.43	5	4L	86
047BK:TOBIN-----	25	N/A	2w	Not prime farmland	B	Loamy Lowland (pe20-26)	7	.32	.32	5	6	48
047HD:HARNEY----	80	2e-	2e	All areas are prime farmland	B	Loamy Upland (pe20-26)	8	.32	.32	5	7	38
047HD:ULY-----	20	2e-	2e	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
047HO:HORD-----	100	1-	2c	All areas are prime farmland	B	Loamy Terrace (pe20-26)	7	.32	.32	5	6	48
047PA:PLATTE----	100	4w-	4w	Not prime farmland	B	Subirrigated (pe21-28)	5	.28	.28	5	4L	86
047ZE:LESHO-----	100	3s-	4s	Not prime farmland	C	Saline Lowland (pe21-28)	5	.28	.28	4	4L	86
069AN:BRIDGEPORT	100	N/A	5w	Not prime farmland	B	Loamy Lowland (pe16-20)	5	.28	.28	5	4L	86
069LA:LAS ANIMAS	50	3w-	4w	Not prime farmland	C	Saline Subirrigated (pe16-20)	3	.24	.24	5	3	86
069LA:LESHO-----	40	3s-	4s	Not prime farmland	C	Saline Subirrigated (pe16-20)	5	.28	.28	4	4L	86
069ME:PENDEN----	100	N/A	6e	Not prime farmland	B	Limy Upland (pe16-20)	5	.28	.28	5	4L	86
069PA:PRATT-----	100	3e-	3e	Not prime farmland	A	Sands (pe16-20)	2	.17	.17	5	2	134
069RN:RICHFIELD-	100	2e-	2e	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48

Ford County, Kansas: Maintenance needed
Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
069SA:SATANTA---	100	1-	2c	All areas are prime farmland	B	Loamy Upland (pe16-20)	7	.28	.28	5	6	48
069SB:SATANTA---	100	2e-	2e	All areas are prime farmland	B	Loamy Upland (pe16-20)	7	.28	.28	5	6	48
069UB:ULYSSES---	100	2e-	2e	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
069UC:ULYSSES---	100	3e-	3e	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
083HO:HORD-----	100	1-	2c	All areas are prime farmland	B	Loamy Terrace (pe20-26)	8	.32	.32	5	7	38
083KP:KIM-----	60	3e-	4e	Not prime farmland	B	Limy Upland (pe20-26)	5	.32	.32	5	4L	86
083KP:PENDEN----	40	N/A	3e	Not prime farmland	B	Limy Upland (pe20-26)	5	.32	.32	5	4L	86
083RZ:BRIDGEPORT	100	2e-	2e	All areas are prime farmland	B	Loamy Upland (pe20-26)	5	.32	.32	5	4L	86
097AT:ATTICA----	100	N/A	2e	Not prime farmland	B	Sandy (pe21-28)	2	.17	.17	5	2	134
097CO:COLY-----	100	4e-	4e	Not prime farmland	B	Limy Upland (pe20-25)	5	.43	.43	5	4L	86
097CT:COLY-----	70	N/A	6e	Not prime farmland	B	Limy Upland (pe20-25)	5	.43	.43	5	4L	86
097CT:TOBIN-----	30	N/A	5w	Not prime farmland	B	Loamy Lowland (pe20-25)	7	.32	.32	5	6	48
119OZ:OTERO-----	60	3e-	4e	Not prime farmland	B	Sandy (pe20-25)	3	.24	.24	5	3	86
119OZ:MANTER----	40	3e-	4e	Not prime farmland	B	Sandy (pe20-25)	3	.20	.20	5	3	86
119PR:PRATT-----	100	3e-	3e	Not prime farmland	A	Sands (pe17-20)	2	.17	.17	5	2	134
119RX:ROXBURY---	100	1-	2c	All areas are prime farmland	B	Loamy Terrace (pe20-26)	5	.32	.32	5	4L	86
ARR:ARKANSAS RIVER-----	100	N/A	8w	Not prime farmland	D	Unspecified		---	---	-	---	0
Ad:TIVOLI-----	100	N/A	7e	Not prime farmland	A	Choppy Sands (pe20-26)	1	.15	.15	5	1	250
An:ROXBURY-----	100	N/A	5w	Not prime farmland	B	Loamy Lowland (pe20-26)	5	.32	.32	5	4L	86

Ford County, Kansas: Maintenance needed
Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
As:LESHO-----	75	N/A	3w	Not prime farmland	C	Loamy Lowland (pe20-26)	5	.28	.28	5	4L	86
As:LESHO, SALINE	25	3s-	4s	Not prime farmland	C	Saline Subirrigated (pe20-26)	5	.28	.28	4	4L	86
BOP:BORROW PITS-	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
Bc:BIPPUS-----	100	3e-	3e	All areas are prime farmland	B	Loamy Upland (pe20-26)	5	.28	.28	5	4L	86
Br:FLUVENTS-----	100	N/A	6w	Not prime farmland	B	Unspecified	5	.32	.32	5	4L	86
Ca:CANADIAN-----	100	N/A	2e	Not prime farmland	B	Sandy Terrace (pe20-26)	3	.20	.20	5	3	86
Da:DALE-----	100	N/A	2c	All areas are prime farmland	B	Loamy Terrace (pe20-26)	6	.32	.32	5	5	56
Dh:DALE-----	50	N/A	2c	All areas are prime farmland	B	Loamy Terrace (pe20-26)	6	.32	.32	5	5	56
Dh:HUMBARGER----	50	2w-	2w	All areas are prime farmland	B	Loamy Terrace (pe20-26)	5	.28	.28	5	4L	86
Dl:DALHART-----	70	2e-	2e	Not prime farmland	B	Sandy (pe20-26)	3	.24	.24	5	3	86
Dl:LUBBOCK-----	30	1-	2c	Not prime farmland	B	Loamy Upland (pe20-26)	7	.28	.28	5	6	48
GRP:PITS-----	100	N/A	8s	Not prime farmland	A	Unspecified	9	.10	.17	2	8	0
Ha:HARNEY-----	100	1-	2c	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Hb:HARNEY-----	100	2e-	2e	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Hd:HOLDREGE-----	100	2e-	2e	Not prime farmland	B	Loamy Upland (pe20-26)	3	.32	.32	5	3	86
Hg:HOLDREGE-----	100	1-	2c	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.28	.28	5	6	48
Ho:HOLDREGE-----	100	1-	2c	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Hs:HOLDREGE-----	100	2e-	2e	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
INL:AQUOLLS-----	100	N/A	5w	Not prime farmland	C	Unspecified		---	---	-	---	0

Ford County, Kansas: Maintenance needed
Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
La:LAS ANIMAS---	100	3w-	3w	Not prime farmland	C	Saline Subirrigated (pe20-26)	3	.24	.24	5	3	86
Lc:LAS ANIMAS---	80	3w-	4w	Not prime farmland	C	Saline Subirrigated (pe20-26)	3	.24	.24	5	3	86
Lc:LINCOLN-----	20	N/A	6s	Not prime farmland	A	Sandy Lowland (pe20-26)	1	.15	.15	5	1	220
Ln:LAS ANIMAS---	50	3w-	3w	Not prime farmland	C	Saline Subirrigated (pe20-26)	3	.24	.24	5	3	86
Ln:TIVOLI-----	50	N/A	6e	Not prime farmland	A	Sands (pe20-26)	1	.15	.15	5	1	250
Ls:LESHARA-----	100	2w-	2w	Not prime farmland	B	Subirrigated (pe20-26)	7	.28	.28	4	6	48
Lt:LESHO-----	100	N/A	3w	Not prime farmland	C	Saline Subirrigated (pe16-20)	5	.28	.28	5	4L	86
Lu:LINCOLN-----	100	N/A	7w	Not prime farmland	A	Sandy Lowland (pe20-26)	1	.15	.15	5	1	220
M- W:MISCELLANEOUS WATER-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
Ma:PENDEN-----	100	1-	2c	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	5	4L	86
Mb:PENDEN-----	100	2e-	2e	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	5	4L	86
Mc:PENDEN-----	100	2e-	3e	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	5	4L	86
Md:PENDEN-----	100	N/A	3e	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	5	4L	86
Mf:PENDEN-----	85	N/A	4e	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	5	4L	86
Mf:CAMPUS-----	15	N/A	4e	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	2	4L	86
Mh:PENDEN-----	70	N/A	6e	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	5	4L	86
Mh:TOBIN-----	30	N/A	5w	Not prime farmland	B	Loamy Lowland (pe20-26)	7	.32	.32	5	6	48
Mn:CAMPUS-----	100	3e-	3e	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	2	4L	86
Mp:CAMPUS-----	70	N/A	6e	Not prime farmland	B	Limy Upland (pe20-26)	5	.28	.28	2	4L	86
Mp:CANLON-----	30	N/A	7s	Not prime farmland	D	Shallow Limy (pe20-26)	5	.32	.32	1	4L	86

Ford County, Kansas: Maintenance needed
Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Of:ATTICA-----	100	N/A	2e	Not prime farmland	B	Sandy (pe20-26)	3	.24	.24	-	3	86
Or:ATTICA-----	100	N/A	3e	Not prime farmland	B	Sandy (pe20-26)	3	.24	.24	5	3	86
Os:ATTICA-----	60	N/A	3e	Not prime farmland	B	Sandy (pe20-26)	3	.24	.24	5	3	86
Os:CARWILE-----	40	N/A	2w	Not prime farmland	D	Sandy (pe20-26)	3	.24	.24	5	3	86
Ot:OTERO-----	100	4e-	4e	Not prime farmland	B	Sandy (pe20-26)	3	.24	.24	5	3	86
Po:CANLON-----	100	N/A	7s	Not prime farmland	D	Shallow Limy (pe20-26)	5	.32	.32	1	4L	86
Pr:PRATT-----	100	3e-	4e	Not prime farmland	A	Sands (pe20-26)	2	.17	.17	5	2	134
Pt:PRATT-----	60	3e-	4e	Not prime farmland	A	Sands (pe20-26)	2	.17	.17	5	2	134
Pt:TIVOLI-----	40	N/A	6e	Not prime farmland	A	Sands (pe20-26)	2	.17	.17	5	2	134
Ra:NESS-----	100	N/A	6w	Not prime farmland	D	Lakebed (pe20- 26)	4	.28	.28	5	4	86
Sb:PRATT-----	70	4e-	6e	Not prime farmland	A	Sands (pe20-26)	2	.17	.17	5	2	134
Sb:HUMBARGER----	30	2w-	2w	Not prime farmland	B	Loamy Lowland (pe20-26)	5	.32	.32	5	4L	86
Sp:SPEARVILLE---	100	2s-	2s	All areas are prime farmland	C	Clay Upland (pe20-26)	8	.32	.32	5	7	38
Sr:SPEARVILLE---	100	3e-	3e	All areas are prime farmland	C	Clay Upland (pe20-26)	8	.32	.32	5	7	38
Tv:TIVOLI-----	100	N/A	7e	Not prime farmland	A	Choppy Sands (pe20-26)	1	.15	.15	5	1	250
Ua:ULY-----	100	2e-	2e	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Ub:ULY-----	100	3e-	3e	All areas are prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Uc:ULY-----	70	N/A	4e	Not prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Uc:COLY-----	30	3e-	3e	Not prime farmland	B	Limy Upland (pe20-26)	5	.43	.43	5	4L	86
Uh:ULY-----	60	2e-	2e	Prime farmland if irrigated	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48

Ford County, Kansas: Maintenance needed
Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Uh:HARNEY-----	40	2e-	2e	Prime farmland if irrigated	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Un:ULY-----	70	2e-	2e	Prime farmland if irrigated	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Un:HARNEY-----	30	N/A	3e	Prime farmland if irrigated	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Up:ULY-----	75	3e-	4e	Not prime farmland	B	Loamy Upland (pe20-26)	7	.32	.32	5	6	48
Up:TOBIN-----	25	N/A	2w	Not prime farmland	B	Loamy Lowland (pe20-26)	7	.32	.32	5	6	48
W:WATER-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	0

RANGELAND PRODUCTIVITY Ford County, Kansas

Use and Explanation of Rangeland, Grazed Forest Land, Native Pastureland Interpretations

Information in this subsection can be used to plan the use and management of soils for rangeland, grazed forest land, and native pasture. Different kinds of soils vary in their capacity to produce native grasses and other plants suitable for grazing. Information in this subsection provides groupings of similar soils and estimates of potential forage production, which can be used to determine livestock stocking rates.

Rangeland. Range is land on which the native vegetation (climax or natural potential plant community) is predominantly grasses, grasslike plants, forbs, and shrubs suitable for grazing and browsing. Range includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain shrub and forb communities. Rangeland receives no regular or frequent cultural treatment. The composition and production of the plant community are determined by soil, climate, topography, overstory canopy, and grazing management.

Grazed Forest Land. Includes land on which the understory includes, as an integral part of the forest plant community, plants that can be grazed without significantly impairing other forest values.

Native Pasture. Includes land on which the native vegetation (climax or natural potential plant community) is forest but which is used and managed primarily for production of native plants for forage. Native pasture includes cut-over forest land and forest land cleared and now managed for native or naturalized forage plants.

Rangeland

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management based on the relationship between the soils and vegetation and water.

The Rangeland, Grazed Forest land, Native Pastureland Interpretations shows, for each soil that supports rangeland vegetation, the ecological site and the potential annual production of vegetation in favorable, normal, unfavorable years. An explanation of the column headings in this table follows.

An ecological site is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of a site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

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, average, 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. Yields are adjusted to a common percent of air-dry moisture content.

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 similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the National Range and Pasture Handbook, which is available in local offices of the Natural Resources Conservation Service. 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, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

RANGELAND PRODUCTIVITY--Continued
Ford County, Kansas

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
025KB: Kingsdown-----	Sandy (pe20-25)	4,000	3,000	2,000
025PF: Penden-----	Limy Upland (pe20-25)	4,000	2,500	1,000
025PG: Penden-----	Limy Upland (pe20-25)	4,000	2,500	1,000
025RF: Roxbury-----	Loamy Lowland (pe20-25)	5,000	4,000	2,500
025SA: Satanta-----	Loamy Upland (pe20-26)	3,000	2,000	1,000
047BK: Coly-----	Limy Upland (pe20-26)	3,300	3,000	2,700
Tobin-----	Loamy Lowland (pe20-26)	6,000	5,000	4,000
047HD: Harney-----	Loamy Upland (pe20-26)	5,000	3,500	2,000
Uly-----	Loamy Upland (pe20-26)	3,700	3,200	2,700
047HO: Hord-----	Loamy Terrace (pe20-26)	4,500	4,200	3,800
047PA: Platte-----	Subirrigated (pe21-28)	5,000	4,600	4,200
047ZE: Lesho-----	Saline Lowland (pe21-28)	6,500	5,500	4,000
069AN: Bridgeport-----	Loamy Lowland (pe16-20)	6,000	4,500	3,500
069LA: Las Animas, occasionally flooded--	Saline Subirrigated (pe16-20)	4,500	3,750	2,500
Lesho, occasionally flooded-----	Saline Subirrigated (pe16-20)	6,500	5,500	4,000
069ME: Penden-----	Limy Upland (pe16-20)	4,000	2,500	1,000
069PA: Pratt-----	Sands (pe16-20)	4,500	3,500	2,500
069RN: Richfield-----	Loamy Upland (pe16-20)	2,400	1,800	800
069SA: Satanta-----	Loamy Upland (pe16-20)	3,000	2,000	1,000
069SB: Satanta-----	Loamy Upland (pe16-20)	3,000	2,000	1,000
069UB: Ulysses-----	Loamy Upland (pe16-20)	2,400	1,800	1,000
069UC: Ulysses-----	Loamy Upland (pe16-20)	2,400	1,800	1,000
083HO: Hord-----	Loamy Terrace (pe20-26)	4,500	4,200	3,800
083KP: Kim-----	Limy Upland (pe20-26)	2,000	1,800	1,400
Penden-----	Limy Upland (pe20-26)	4,000	2,500	1,000
083RZ: Bridgeport-----	Loamy Upland (pe20-26)	4,000	3,000	2,000
097AT: Attica-----	Sandy (pe21-28)	4,500	3,000	2,000
097CO: Coly-----	Limy Upland (pe20-25)	4,000	3,600	3,200
097CT: Coly-----	Limy Upland (pe20-25)	4,000	3,600	3,200
Tobin-----	Loamy Lowland (pe20-25)	6,000	5,000	4,000
119OZ: Otero-----	Sandy (pe20-25)	1,800	1,500	1,000
Manter-----	Sandy (pe20-25)	2,000	1,600	800
119PR: Pratt-----	Sands (pe17-20)	4,500	3,500	2,500
119RX: Roxbury-----	Loamy Terrace (pe20-26)	4,000	3,000	2,000
Ad: Tivoli-----	Choppy Sands (pe20-26)	2,500	1,800	1,300
An: Roxbury-----	Loamy Lowland (pe20-26)	5,000	4,000	2,500
ARR: Arkansas River-----	---	---	---	---
As: Lesho-----	Loamy Lowland (pe20-26)	9,000	8,000	7,000
Lesho, Saline-----	Saline Subirrigated (pe20-26)	6,500	6,500	6,500
Bc: Bippus-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
BOP: Borrow Pits-----	---	---	---	---
Br: Fluvents-----	---	---	---	---
Ca: Canadian-----	Sandy Terrace (pe20-26)	5,500	4,000	3,000
Da: Dale-----	Loamy Terrace (pe20-26)	5,000	4,000	3,000
Dh: Dale-----	Loamy Terrace (pe20-26)	5,000	4,000	3,000
Humbarger-----	Loamy Terrace (pe20-26)	5,000	4,000	3,000
Dl:				

RANGELAND PRODUCTIVITY--Continued
Ford County, Kansas

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
Dalhart-----	Sandy (pe20-26)	2,600	2,000	1,500
Lubbock-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
GRP:				
Pits-----	---	---	---	---
Ha:				
Harney-----	Loamy Upland (pe20-26)	4,000	2,200	1,000
Hb:				
Harney-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
Hd:				
Holdrege-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
Hg:				
Holdrege-----	Loamy Upland (pe20-26)	3,500	2,500	1,500
Ho:				
Holdrege-----	Loamy Upland (pe20-26)	4,000	3,600	3,300
Hs:				
Holdrege-----	Loamy Upland (pe20-26)	3,500	2,500	1,500
INL:				
Aquolls-----	---	---	---	---
La:				
Las Animas, occasionally flooded--	Saline Subirrigated (pe20-26)	6,500	6,500	6,500
Lc:				
Las Animas-----	Saline Subirrigated (pe20-26)	6,500	6,500	6,500
Lincoln-----	Sandy Lowland (pe20-26)	4,000	3,000	2,000
Ln:				
Las Animas-----	Saline Subirrigated (pe20-26)	6,500	6,500	6,500
Tivoli-----	Sands (pe20-26)	3,500	3,000	2,000
Ls:				
Leshara-----	Subirrigated (pe20-26)	9,000	8,000	7,000
Lt:				
Lesho, occasionally flooded-----	Saline Subirrigated (pe16-20)	9,000	8,000	7,000
Lu:				
Lincoln-----	Sandy Lowland (pe20-26)	4,000	3,000	2,000
M-W:				
Miscellaneous Water-----	---	---	---	---
Ma:				
Penden-----	Limy Upland (pe20-26)	4,000	3,000	2,200
Mb:				
Penden-----	Limy Upland (pe20-26)	4,000	3,000	2,200
Mc:				
Penden-----	Limy Upland (pe20-26)	4,000	3,000	2,200
Md:				
Penden-----	Limy Upland (pe20-26)	4,000	2,500	1,000
Mf:				
Penden-----	Limy Upland (pe20-26)	4,000	3,000	2,200
Campus-----	Limy Upland (pe20-26)	3,000	2,200	1,000
Mh:				
Penden-----	Limy Upland (pe20-26)	4,000	3,000	2,200
Tobin-----	Loamy Lowland (pe20-26)	6,000	5,000	4,000
Mn:				
Campus-----	Limy Upland (pe20-26)	3,000	2,200	1,000
Mp:				
Campus-----	Limy Upland (pe20-26)	3,000	2,200	1,000
Canlon-----	Shallow Limy (pe20-26)	2,400	1,600	900
Of:				
Attica-----	Sandy (pe20-26)	3,500	2,500	2,000
Or:				
Attica-----	Sandy (pe20-26)	3,500	2,500	2,000
Os:				
Attica-----	Sandy (pe20-26)	3,500	2,500	2,000
Carwile-----	Sandy (pe20-26)	3,500	2,500	2,000
Ot:				
Otero-----	Sandy (pe20-26)	3,500	2,500	2,000
Po:				
Canlon-----	Shallow Limy (pe20-26)	2,400	1,600	900
Pr:				
Pratt-----	Sands (pe20-26)	3,500	3,000	2,000
Pt:				
Pratt-----	Sands (pe20-26)	3,500	3,000	2,000
Tivoli-----	Sands (pe20-26)	3,500	3,000	2,000
Ra:				
Ness-----	Lakebed (pe20-26)	3,000	2,200	1,500
Sb:				
Pratt-----	Sands (pe20-26)	4,500	3,500	2,500
Humbarger-----	Loamy Lowland (pe20-26)	5,000	4,000	3,000
Sp:				
Spearville-----	Clay Upland (pe20-26)	2,500	2,000	1,000
Sr:				
Spearville-----	Clay Upland (pe20-26)	2,500	2,000	1,000
Tv:				
Tivoli-----	Choppy Sands (pe20-26)	2,500	1,800	1,300
Ua:				
Uly-----	Loamy Upland (pe20-26)	3,700	3,200	2,700
Ub:				
Uly-----	Loamy Upland (pe20-26)	3,700	3,200	2,700
Uc:				

RANGELAND PRODUCTIVITY--Continued
Ford County, Kansas

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
Uly-----	Loamy Upland (pe20-26)	3,700	3,200	2,700
Coly-----	Limy Upland (pe20-26)	3,300	3,000	2,700
Uh:				
Uly-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
Harney-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
Un:				
Uly-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
Harney-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
Up:				
Uly-----	Loamy Upland (pe20-26)	3,500	2,500	1,800
Tobin-----	Loamy Lowland (pe20-26)	6,000	5,000	4,000
W:				
Water-----	---	---	---	---

BUILDING SITE DEVELOPMENT
Ford County, Kansas

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. The following tables show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

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 soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
025PF: Penden-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
025PG: Penden-----	100	Somewhat limited Shrink-swell Slope	0.50 0.37	Somewhat limited Shrink-swell Slope	0.50 0.37	Very limited Slope Shrink-swell	1.00 0.50
025RF: Roxbury-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
025SA: Satanta-----	100	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
047BK: Coly-----	75	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
Tobin-----	25	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
047HD: Harney-----	80	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Uly-----	20	Not limited		Not limited		Not limited	
047HO: Hord-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
047PA: Platte-----	100	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
047ZE: Lesho-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.95 0.50	Very limited Flooding Shrink-swell	1.00 0.50
069AN: Bridgeport-----	100	Not rated		Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Very limited Flooding	 1.00	Very limited Flooding Depth to saturated zone	 1.00 0.95	Very limited Flooding	 1.00
Lesho, occasionally flooded-----	40	Very limited Flooding	 1.00	Very limited Flooding Depth to saturated zone	 1.00 0.95	Very limited Flooding	 1.00
069ME: Penden-----	100	Somewhat limited Shrink-swell Slope	0.50 0.37	Somewhat limited Shrink-swell Slope	0.50 0.37	Very limited Slope Shrink-swell	1.00 0.50
069PA: Pratt-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
069RN: Richfield-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
069SA: Satanta-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
069SB: Satanta-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
069UB: Ulysses-----	100	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
069UC: Ulysses-----	100	Not limited		Not limited		Somewhat limited Slope	0.12
083HO: Hord-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
083KP: Kim-----	60	Not limited		Not limited		Somewhat limited Slope	0.12
Penden-----	40	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
083RZ: Bridgeport-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
097AT: Attica-----	100	Not limited		Not limited		Not limited	
097CO: Coly-----	100	Not limited		Not limited		Somewhat limited Slope	0.86
097CT: Coly-----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Tobin-----	30	Very limited Flooding	1.00	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding	1.00
119OZ: Otero-----	60	Not limited		Not limited		Somewhat limited Slope	0.12
Manter-----	40	Not limited		Not limited		Somewhat limited Slope	0.12
119PR: Pratt-----	100	Not limited		Not limited		Not limited	
119RX: Roxbury-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Ad: Tivoli-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
An: Roxbury-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
ARR: Arkansas River-----	100	Not rated		Not rated		Not rated	
As: Lesho-----	75	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 0.95	Very limited Flooding Shrink-swell	1.00 0.50
Lesho, Saline-----	25	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 0.95	Very limited Flooding Shrink-swell	1.00 0.50
Bc: Bippus-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.00
BOP: Borrow Pits-----	100	Not rated		Not rated		Not rated	
Br: Fluents-----	100	Very limited Flooding Slope Shrink-swell	1.00 1.00 0.50	Very limited Flooding Slope Shrink-swell	1.00 1.00 0.50	Very limited Flooding Slope Shrink-swell	1.00 1.00 0.50
Ca: Canadian-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Da: Dale-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Dh: Dale-----	50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Humbarger-----	50	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Dl: Dalhart-----	70	Not limited		Not limited		Not limited	
Lubbock-----	30	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
GRP: Pits-----	100	Not rated		Not rated		Not rated	
Ha: Harney-----	100	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Hb: Harney-----	100	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Hd: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Hg: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Ho: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Hs: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
INL: Aquolls-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
La: Las Animas, occasionally flooded-----	100	Very limited Flooding Depth to saturated zone	 1.00 0.07	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Depth to saturated zone	 1.00 0.07
Lc: Las Animas-----	80	Very limited Flooding Depth to saturated zone	1.00 0.07	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.07
Lincoln-----	20	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.03	Very limited Flooding	1.00
Ln: Las Animas-----	50	Very limited Flooding Depth to saturated zone	1.00 0.07	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.07
Tivoli-----	50	Not limited		Not limited		Somewhat limited Slope	0.48
Ls: Leshara-----	100	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.50 0.07	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.50 0.07
Lt: Lesho, occasionally flooded-----	100	Very limited Flooding	 1.00	Very limited Flooding Depth to saturated zone	 1.00 0.95	Very limited Flooding	 1.00
Lu: Lincoln-----	100	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.03	Very limited Flooding	1.00

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Ma: Penden-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Mb: Penden-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Mc: Penden-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Md: Penden-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
Mf: Penden-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
Campus-----	15	Somewhat limited Depth to hard bedrock	0.97	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to hard bedrock Slope	0.97 0.12
Mh: Penden-----	70	Somewhat limited Shrink-swell Slope	0.50 0.00	Somewhat limited Shrink-swell Slope	0.50 0.00	Very limited Slope Shrink-swell	1.00 0.50
Tobin-----	30	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Mn: Campus-----	100	Somewhat limited Depth to hard bedrock	0.97	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to hard bedrock	0.97
Mp: Campus-----	70	Somewhat limited Depth to hard bedrock Slope	0.97 0.00	Very limited Depth to hard bedrock Slope	1.00 0.00	Very limited Slope Depth to hard bedrock	1.00 0.97
Canlon-----	30	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Of: Attica-----	100	Not limited		Not limited		Not limited	
Or: Attica-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Os: Attica-----	60	Not limited		Not limited		Not limited	
Carwile-----	40	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 0.50
Ot: Otero-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Po: Canlon-----	100	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
Pr: Pratt-----	100	Not limited		Not limited		Somewhat limited Slope	0.86
Pt: Pratt-----	60	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Tivoli-----	40	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Ra: Ness-----	100	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sb: Pratt-----	70	Not limited		Not limited		Somewhat limited Slope	0.48
Humbarger-----	30	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding	1.00	Very limited Flooding Shrink-swell	1.00 0.50
Sp: Spearville-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Sr: Spearville-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Tv: Tivoli-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
Ua: Uly-----	100	Not limited		Not limited		Not limited	
Ub: Uly-----	100	Not limited		Not limited		Somewhat limited Slope	0.12
Uc: Uly-----	70	Not limited		Not limited		Somewhat limited Slope	0.12
Coly-----	30	Not limited		Not limited		Somewhat limited Slope	0.12
Uh: Uly-----	60	Not limited		Not limited		Not limited	
Harney-----	40	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Un: Uly-----	70	Not limited		Not limited		Not limited	
Harney-----	30	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Up: Uly-----	75	Not limited		Not limited		Somewhat limited Slope	0.12
Tobin-----	25	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
W: Water-----	100	Not rated		Not rated		Not rated	

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
025PF: Penden-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
025PG: Penden-----	100	Somewhat limited Shrink-swell Slope	0.50 0.37	Somewhat limited Slope Cutbanks cave	0.37 0.10	Somewhat limited Slope	0.37
025RF: Roxbury-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
025SA: Satanta-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
047BK: Coly-----	75	Somewhat limited Low strength Frost action Slope	0.78 0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00
Tobin-----	25	Very limited Flooding Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
047HD: Harney-----	80	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Uly-----	20	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
047HO: Hord-----	100	Somewhat limited Flooding	0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
047PA: Platte-----	100	Very limited Flooding Depth to saturated zone	1.00 0.75	Very limited Depth to saturated zone Cutbanks cave Flooding Depth to dense layer	1.00 1.00 0.60 0.50	Somewhat limited Depth to saturated zone Flooding Droughty	0.75 0.60 0.57
047ZE: Lesho-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 0.95 0.60	Somewhat limited Flooding Salinity	0.60 0.13
069AN: Bridgeport-----	100	Not rated		Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Very limited Flooding Frost action	 1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Flooding	 1.00 0.95 0.60	Somewhat limited Flooding Salinity	 0.60 0.13
Lesho, occasionally flooded-----	40	Very limited Flooding Frost action	 1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Flooding	 1.00 0.95 0.60	Somewhat limited Flooding Salinity	 0.60 0.13
069ME: Penden-----	100	Very limited Low strength Shrink-swell Frost action Slope	1.00 0.50 0.50 0.37	Somewhat limited Slope Cutbanks cave	0.37 0.10	Somewhat limited Slope	0.37

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
069PA: Pratt-----	100	Not limited		Very limited Cutbanks cave	1.00	Not limited	
069RN: Richfield-----	100	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
069SA: Satanta-----	100	Somewhat limited Low strength Shrink-swell Frost action	0.78 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
069SB: Satanta-----	100	Somewhat limited Low strength Shrink-swell Frost action	0.78 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
069UB: Ulysses-----	100	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
069UC: Ulysses-----	100	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
083HO: Hord-----	100	Very limited Low strength Frost action Flooding	1.00 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
083KP: Kim-----	60	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Penden-----	40	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
083RZ: Bridgeport-----	100	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
097AT: Attica-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
097CO: Coly-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
097CT: Coly-----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Tobin-----	30	Very limited Flooding	1.00	Somewhat limited Flooding Cutbanks cave	0.10 0.80 0.10	Very limited Flooding	1.00
119OZ: Otero-----	60	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Manter-----	40	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
119PR: Pratt-----	100	Not limited		Very limited Cutbanks cave	1.00	Not limited	
119RX: Roxbury-----	100	Very limited Low strength Shrink-swell Frost action Flooding	1.00 0.50 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Ad: Tivoli-----	100	Somewhat limited Slope	0.84	Very limited Cutbanks cave Slope	1.00 0.84	Somewhat limited Slope Droughty	0.84 0.64

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
An: Roxbury-----	100	Very limited Flooding Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Somewhat limited Flooding Cutbanks cave	0.80 0.10	Very limited Flooding	1.00
ARR: Arkansas River-----	100	Not rated		Not rated		Not rated	
As: Lesho-----	75	Very limited Flooding Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 0.95 0.60	Somewhat limited Flooding	0.60
Lesho, Saline-----	25	Very limited Flooding Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 0.95 0.60	Somewhat limited Flooding Salinity	0.60 0.13
Bc: Bippus-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
BOP: Borrow Pits-----	100	Not rated		Not rated		Not rated	
Br: Fluvents-----	100	Very limited Flooding Slope Low strength Shrink-swell	1.00 1.00 0.78 0.50	Very limited Slope Flooding Cutbanks cave	1.00 0.80 0.10	Very limited Flooding Slope	1.00 1.00
Ca: Canadian-----	100	Somewhat limited Frost action Flooding	0.50 0.40	Very limited Cutbanks cave	1.00	Not limited	
Da: Dale-----	100	Very limited Low strength Shrink-swell Frost action Flooding	1.00 0.50 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Dh: Dale-----	50	Very limited Low strength Shrink-swell Frost action Flooding	1.00 0.50 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Humbarger-----	50	Very limited Flooding Frost action	1.00 0.50	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
Dl: Dalhart-----	70	Somewhat limited Frost action Low strength	0.50 0.22	Somewhat limited Cutbanks cave	0.10	Not limited	
Lubbock-----	30	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
GRP: Pits-----	100	Not rated		Not rated		Not rated	
Ha: Harney-----	100	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Hb: Harney-----	100	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Hd: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Hg: Holdrege-----	100	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Ho: Holdrege-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Hs: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
INL: Aquolls-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
La: Las Animas, occasionally flooded-----	100	Very limited Flooding Frost action Depth to saturated zone	 1.00 0.50 0.03	Very limited Cutbanks cave Depth to saturated zone Flooding	 1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	 0.60 0.03
Lc: Las Animas-----	80	Very limited Flooding Frost action Depth to saturated zone	1.00 0.50 0.03	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.03
Lincoln-----	20	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.60 0.03	Somewhat limited Flooding Too sandy	0.60 0.50
Ln: Las Animas-----	50	Very limited Flooding Frost action Depth to saturated zone	1.00 0.50 0.03	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.03
Tivoli-----	50	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.64
Ls: Leshara-----	100	Very limited Flooding Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 0.50 0.50 0.03	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.03
Lt: Lesho, occasionally flooded-----	100	Very limited Flooding Frost action	 1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Flooding	 1.00 0.95 0.60	Somewhat limited Flooding	 0.60
Lu: Lincoln-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.80 0.03	Very limited Flooding Too sandy	1.00 0.50

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Ma: Penden-----	100	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Mb: Penden-----	100	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Mc: Penden-----	100	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Md: Penden-----	100	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Mf: Penden-----	85	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Campus-----	15	Somewhat limited Depth to hard bedrock Low strength Frost action	0.97 0.78 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.97
Mh: Penden-----	70	Very limited Low strength Shrink-swell Frost action Slope	1.00 0.50 0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00
Tobin-----	30	Very limited Flooding Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Somewhat limited Flooding Cutbanks cave	0.80 0.10	Very limited Flooding	1.00
Mn: Campus-----	100	Somewhat limited Depth to hard bedrock Low strength Frost action	0.97 0.78 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.97
Mp: Campus-----	70	Somewhat limited Depth to hard bedrock Low strength Frost action Slope	0.97 0.78 0.50 0.00	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.00	Somewhat limited Depth to bedrock Slope	0.97 0.00
Canlon-----	30	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.93
Of: Attica-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Or: Attica-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Os: Attica-----	60	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Carwile-----	40	Very limited Depth to saturated zone Low strength Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.28 0.10	Very limited Depth to saturated zone	1.00

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ot: Otero-----	100	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Po: Canlon-----	100	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.93
Pr: Pratt-----	100	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Pt: Pratt-----	60	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Slope	0.16
Tivoli-----	40	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Droughty Slope	0.48 0.16
Ra: Ness-----	100	Very limited Depth to saturated zone Low strength Shrink-swell	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Too clayey	1.00 1.00
Sb: Pratt-----	70	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Humbarger-----	30	Very limited Flooding Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
Sp: Spearville-----	100	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Too clayey Cutbanks cave	0.18 0.10	Not limited	
Sr: Spearville-----	100	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Too clayey Cutbanks cave	0.18 0.10	Not limited	
Tv: Tivoli-----	100	Somewhat limited Slope	0.84	Very limited Cutbanks cave Slope	1.00 0.84	Somewhat limited Slope Droughty	0.84 0.64
Ua: Uly-----	100	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Ub: Uly-----	100	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Uc: Uly-----	70	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Coly-----	30	Somewhat limited Low strength Frost action	0.78 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Uh: Uly-----	60	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Harney-----	40	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Un: Uly-----	70	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Harney-----	30	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

BUILDING SITE DEVELOPMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Up: Uly-----	75	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Tobin-----	25	Very limited Flooding Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
W: Water-----	100	Not rated		Not rated		Not rated	

CONSTRUCTION MATERIALS
Ford County, Kansas

Construction Materials

The following tables give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated good, fair, or poor as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a probable or improbable source of sand and gravel. A rating of probable means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

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 these tables, 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 Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

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. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

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.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

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 whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a 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 AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
025KB: Kingsdown-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.07 0.09
025PF: Penden-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
025PG: Penden-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
025RF: Roxbury-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
025SA: Satanta-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
047BK: Coly-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Tobin-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
047HD: Harney-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Uly-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
047HO: Hord-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
047PA: Platte-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.97
047ZE: Lesho-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.00
069AN: Bridgeport-----	100	Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.96
Lesho, occasionally flooded-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.93
069ME: Penden-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
069PA: Pratt-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.19 0.57
069RN: Richfield-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
069SA: Satanta-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
069SB: Satanta-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
069UB: Ulysses-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
069UC: Ulysses-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
083HO: Hord-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
083KP: Kim-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Penden-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
083RZ: Bridgeport-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
097AT: Attica-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.07 0.09
097CO: Coly-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
097CT: Coly-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Tobin-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
119OZ: Otero-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.07 0.08
Manter-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.39

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
119PR: Pratt-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.19 0.57
119RX: Roxbury-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ad: Tivoli-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.99 0.99
An: Roxbury-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
ARR: Arkansas River-----	100	Not rated		Not rated	
As: Lesho-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.99
Lesho, Saline-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.00
Bc: Bippus-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
BOP: Borrow Pits-----	100	Not rated		Not rated	
Br: Fluents-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ca: Canadian-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.67
Da: Dale-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dh: Dale-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Humbarger-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dl: Dalhart-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.05
Lubbock-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GRP: Pits-----	100	Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Ha: Harney-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hb: Harney-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hd: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hg: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ho: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hs: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
INL: Aquolls-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
La: Las Animas, occasionally flooded-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.09
LC: Las Animas-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.07
Lincoln-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Good Bottom layer	0.89
Ln: Las Animas-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.07 0.95
Tivoli-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.99 0.99
Ls: Leshara-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.98
Lt: Lesho, occasionally flooded-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.99
Lu: Lincoln-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Bottom layer	0.89
M-W: Miscellaneous Water-	100	Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Ma: Penden-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mb: Penden-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mc: Penden-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Md: Penden-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mf: Penden-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Campus-----	15	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mh: Penden-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Tobin-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mn: Campus-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mp: Campus-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Canlon-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Of: Attica-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.72
Or: Attica-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.72
Os: Attica-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.72
Carwile-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ot: Otero-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.08 0.67

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Po: Canlon-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Pr: Pratt-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.19 0.51
Pt: Pratt-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.19 0.51
Tivoli-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.57 0.99
Ra: Ness-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sb: Pratt-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.08 0.19
Humbarger-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sp: Spearville-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sr: Spearville-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Tv: Tivoli-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.99 0.99
Ua: Uly-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ub: Uly-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Uc: Uly-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Coly-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Uh: Uly-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Harney-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Un: Uly-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Harney-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Up: Uly-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Tobin-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
W: Water-----	100	Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Fair Low content of organic matter	0.18	Good		Good	
025PF: Penden-----	100	Fair Low content of organic matter Carbonate content Too clayey	0.18 0.80 0.95	Fair Shrink-swell	0.87	Fair Too Clayey	0.84
025PG: Penden-----	100	Fair Low content of organic matter Carbonate content Too clayey	0.18 0.80 0.95	Fair Shrink-swell	0.87	Fair Slope Too Clayey	0.63 0.84
025RF: Roxbury-----	100	Fair Low content of organic matter Water erosion	0.82 0.90	Fair Shrink-swell	0.96	Good	
025SA: Satanta-----	100	Fair Low content of organic matter	0.50	Good		Good	
047BK: Coly-----	75	Poor Low content of organic matter Water erosion	0.00 0.90	Fair Low strength	0.22	Good	
Tobin-----	25	Good		Poor Low strength Shrink-swell	0.00 0.92	Good	
047HD: Harney-----	80	Fair Too clayey Water erosion	0.05 0.90	Good		Fair Too Clayey	0.04
Uly-----	20	Fair Low content of organic matter Water erosion	0.50 0.90	Good		Good	
047HO: Hord-----	100	Good		Good		Good	
047PA: Platte-----	100	Poor Too sandy Droughty Low content of organic matter	0.00 0.07 0.08	Fair Depth to saturated zone	0.14	Poor Hard to reclaim Too sandy Rock fragments Depth to saturated zone Hard to reclaim	0.00 0.00 0.03 0.14 0.98
047ZE: Lesho-----	100	Fair Low content of organic matter Sodium content Salinity	0.50 0.78 0.88	Fair Shrink-swell	0.91	Poor Salinity Sodium content	0.00 0.78
069AN: Bridgeport-----	100	Not rated		Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
069LA: Las Animas, occasionally flooded-----	50	Poor Too alkaline Low content of organic matter Too sandy	0.00 0.50 0.68	Good		Fair Salinity Too sandy	0.50 0.68
Lesho, occasionally flooded-----	40	Poor Low content of organic matter Salinity Too clayey	0.00 0.88 0.95	Good		Fair Too Clayey Salinity	0.84 0.88
069ME: Penden-----	100	Fair Low content of organic matter Carbonate content	0.18 0.80	Poor Low strength Shrink-swell	0.00 0.87	Fair Slope Carbonate content	0.63 0.80
069PA: Pratt-----	100	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.02	Good		Poor Too sandy	0.00
069RN: Richfield-----	100	Fair Low content of organic matter Water erosion	0.18 0.90	Poor Low strength Shrink-swell	0.00 0.76	Good	
069SA: Satanta-----	100	Fair Low content of organic matter	0.92	Fair Low strength Shrink-swell	0.22 0.99	Good	
069SB: Satanta-----	100	Fair Low content of organic matter	0.92	Fair Low strength Shrink-swell	0.22 0.99	Good	
069UB: Ulysses-----	100	Fair Low content of organic matter Water erosion	0.18 0.90	Poor Low strength	0.00	Good	
069UC: Ulysses-----	100	Fair Low content of organic matter Water erosion	0.18 0.90	Poor Low strength	0.00	Good	
083HO: Hord-----	100	Fair Water erosion	0.90	Poor Low strength	0.00	Good	
083KP: Kim-----	60	Fair Low content of organic matter	0.08	Good		Fair Rock fragments	0.97
Penden-----	40	Poor Low content of organic matter Carbonate content	0.00 0.80	Poor Low strength Shrink-swell	0.00 0.87	Fair Carbonate content	0.80
083RZ: Bridgeport-----	100	Fair Water erosion Low content of organic matter	0.90 0.92	Poor Low strength	0.00	Good	

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
097AT: Attica-----	100	Poor Wind erosion Low content of organic matter Too acid	0.00 0.18 0.95	Good		Good	
097CO: Coly-----	100	Poor Low content of organic matter Water erosion	0.00 0.90	Good		Good	
097CT: Coly-----	70	Poor Low content of organic matter Water erosion	0.00 0.90	Good		Poor Slope	0.00
Tobin-----	30	Fair Low content of organic matter Water erosion	0.50 0.90	Fair Shrink-swell	0.98	Good	
119OZ: Otero-----	60	Poor Low content of organic matter	0.00	Good		Fair Rock fragments	0.97
Manter-----	40	Fair Too sandy Low content of organic matter	0.02 0.02	Good		Fair Too sandy Rock fragments	0.02 0.97
119PR: Pratt-----	100	Poor Wind erosion Too sandy Low content of organic matter Droughty	0.00 0.00 0.02 0.99	Good		Poor Too sandy	0.00
119RX: Roxbury-----	100	Fair Water erosion Low content of organic matter	0.90 0.92	Poor Low strength Shrink-swell	0.00 0.96	Good	
Ad: Tivoli-----	100	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.38	Good		Poor Too sandy Slope	0.00 0.16
An: Roxbury-----	100	Fair Water erosion	0.90	Poor Low strength Shrink-swell	0.00 0.96	Good	
ARR: Arkansas River-----	100	Not rated		Not rated		Not rated	
As: Lesho-----	75	Fair Low content of organic matter Too clayey	0.50 0.95	Good		Fair Too Clayey	0.90
Lesho, Saline-----	25	Fair Low content of organic matter Salinity Too clayey	0.12 0.88 0.95	Fair		Fair Too Clayey Salinity	0.84 0.88

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Bc: Bippus-----	100	Fair Low content of organic matter	0.88	Fair Shrink-swell	0.87	Good	
BOP: Borrow Pits-----	100	Not rated		Not rated		Not rated	
Br: Fluents-----	100	Fair Water erosion	0.90	Fair Low strength Shrink-swell	0.22 0.87	Poor Slope	0.00
Ca: Canadian-----	100	Fair Low content of organic matter	0.88	Good		Good	
Da: Dale-----	100	Fair Water erosion	0.90	Poor Low strength Shrink-swell	0.00 0.98	Good	
Dh: Dale-----	50	Fair Water erosion	0.90	Poor Low strength Shrink-swell	0.00 0.99	Good	
Humbarger-----	50	Good		Good		Good	
DL: Dalhart-----	70	Fair Low content of organic matter	0.88	Fair Low strength	0.78	Good	
Lubbock-----	30	Poor Too clayey Low content of organic matter No water erosion limitation	0.00 0.82 0.99	Poor Low strength Shrink-swell	0.00 0.12	Poor Too Clayey	0.00
GRP: Pits-----	100	Not rated		Not rated		Not rated	
Ha: Harney-----	100	Fair Too clayey Water erosion Low content of organic matter	0.05 0.90 0.92	Poor Low strength	0.00	Fair Too Clayey	0.03
Hb: Harney-----	100	Fair Too clayey Low content of organic matter Water erosion	0.05 0.12 0.90	Poor Low strength	0.00	Fair Too Clayey	0.04
Hd: Holdrege-----	100	Fair Water erosion Too clayey	0.90 0.95	Fair Shrink-swell	0.89	Fair Too Clayey	0.84
Hg: Holdrege-----	100	Fair Water erosion Too clayey	0.90 0.95	Poor Low strength Shrink-swell	0.00 0.87	Fair Too Clayey	0.84
Ho: Holdrege-----	100	Poor Low content of organic matter Water erosion	0.00 0.90	Fair Shrink-swell	0.87	Good	

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Hs: Holdrege-----	100	Fair Water erosion Too clayey	0.90 0.95	Fair Shrink-swell	0.87	Fair Too Clayey	0.84
INL: Aguolls-----	100	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
La: Las Animas, occasionally flooded-----	100	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.76	Fair Depth to saturated zone	0.76
Lc: Las Animas-----	80	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.76	Fair Depth to saturated zone	0.76
Lincoln-----	20	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.08	Good		Poor Too sandy	0.00
Ln: Las Animas-----	50	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.76	Fair Depth to saturated zone	0.76
Tivoli-----	50	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.38	Good		Poor Too sandy	0.00
Ls: Leshara-----	100	Fair Water erosion Too clayey	0.90 0.98	Fair Depth to saturated zone	0.76	Fair Depth to saturated zone Too Clayey	0.76 0.86
Lt: Lesho, occasionally flooded-----	100	Poor Low content of organic matter Too clayey	0.00 0.95	Good		Fair Too Clayey	0.84
Lu: Lincoln-----	100	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.08	Good		Poor Too sandy	0.00
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Ma: Penden-----	100	Fair Low content of organic matter Carbonate content	0.50 0.80	Poor Low strength Shrink-swell	0.00 0.87	Fair Carbonate content	0.80
Mb: Penden-----	100	Fair Low content of organic matter Carbonate content	0.50 0.80	Poor Low strength Shrink-swell	0.00 0.87	Fair Carbonate content	0.80

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mc: Penden-----	100	Fair Low content of organic matter Carbonate content	0.50 0.80	Poor Low strength Shrink-swell	0.00 0.87	Fair Carbonate content	0.80
Md: Penden-----	100	Fair Low content of organic matter Carbonate content	0.18 0.80	Poor Low strength Shrink-swell	0.00 0.87	Fair Carbonate content	0.80
ME: Penden-----	85	Fair Low content of organic matter Carbonate content	0.50 0.80	Poor Low strength Shrink-swell	0.00 0.87	Fair Carbonate content	0.80
Campus-----	15	Fair Depth to bedrock Droughty Carbonate content	0.03 0.34 0.80	Poor Depth to bedrock Low strength	0.00 0.22	Fair Depth to bedrock Carbonate content	0.03 0.80
Mh: Penden-----	70	Fair Low content of organic matter Carbonate content	0.50 0.80	Poor Low strength Shrink-swell	0.00 0.87	Fair Carbonate content	0.80
Tobin-----	30	Fair Low content of organic matter Water erosion	0.88 0.90	Poor Low strength Shrink-swell	0.00 0.91	Good	
Mn: Campus-----	100	Fair Depth to bedrock Droughty Carbonate content	0.03 0.34 0.80	Poor Depth to bedrock Low strength	0.00 0.22	Fair Depth to bedrock Carbonate content	0.03 0.80
Mp: Campus-----	70	Fair Depth to bedrock Droughty Carbonate content	0.03 0.34 0.80	Poor Depth to bedrock Low strength	0.00 0.22	Fair Depth to bedrock Carbonate content	0.03 0.80
Canlon-----	30	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.98	Poor Depth to bedrock Slope Rock fragments	0.00 0.00 0.28
Of: Attica-----	100	Fair Low content of organic matter Too acid	0.50 0.95	Good		Good	
Or: Attica-----	100	Fair Low content of organic matter Too acid	0.88 0.95	Good		Good	
Os: Attica-----	60	Fair Low content of organic matter Too acid	0.88 0.95	Good		Good	
Carwile-----	40	Fair Low content of organic matter Too clayey Too acid No water erosion limitation	0.12 0.92 0.97 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.40	Poor Depth to saturated zone Too Clayey	0.00 0.66

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ot: Otero-----	100	Fair Low content of organic matter Too sandy	0.12 0.18	Good		Fair Too sandy Rock fragments	0.18 0.97
Po: Canlon-----	100	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.00	Poor Depth to bedrock Slope Rock fragments	0.00 0.00 0.28
Pr: Pratt-----	100	Poor Wind erosion Too sandy Low content of organic matter Droughty	0.00 0.00 0.12 0.97	Good		Poor Too sandy	0.00
Pt: Pratt-----	60	Poor Wind erosion Too sandy Low content of organic matter Droughty	0.00 0.00 0.12 0.97	Good		Poor Too sandy Slope	0.00 0.84
Tivoli-----	40	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.50	Good		Poor Too sandy Slope	0.00 0.84
Ra: Ness-----	100	Poor Too clayey	0.00	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.39	Poor Too Clayey Depth to saturated zone	0.00 0.00
Sb: Pratt-----	70	Poor Wind erosion Low content of organic matter	0.00 0.12	Good		Good	
Humbarger-----	30	Fair Low content of organic matter	0.12	Good		Good	
Sp: Spearville-----	100	Poor Too clayey Low content of organic matter Water erosion	0.00 0.12 0.90	Poor Low strength Shrink-swell	0.00 0.61	Poor Too Clayey	0.00
Sr: Spearville-----	100	Poor Too clayey Low content of organic matter Water erosion	0.00 0.12 0.90	Poor Low strength Shrink-swell	0.00 0.61	Poor Too Clayey	0.00
Tv: Tivoli-----	100	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.38	Good		Poor Too sandy Slope	0.00 0.16
Ua: Uly-----	100	Fair Low content of organic matter Water erosion	0.50 0.90	Poor Low strength	0.00	Good	

CONSTRUCTION MATERIALS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ub: Uly-----	100	Fair Low content of organic matter Water erosion	0.50 0.90	Poor Low strength	0.00	Good	
Uc: Uly-----	70	Fair Low content of organic matter Water erosion	0.50 0.90	Poor Low strength	0.00	Good	
Coly-----	30	Poor Low content of organic matter Water erosion	0.00 0.90	Fair Low strength	0.22	Good	
Uh: Uly-----	60	Fair Low content of organic matter Water erosion	0.12 0.90	Poor Low strength	0.00	Good	
Harney-----	40	Fair Too clayey Low content of organic matter Water erosion	0.05 0.50 0.90	Poor Low strength	0.00	Fair Too Clayey	0.04
Un: Uly-----	70	Fair Low content of organic matter Water erosion	0.12 0.90	Poor Low strength	0.00	Good	
Harney-----	30	Fair Too clayey Low content of organic matter Water erosion	0.05 0.50 0.90	Poor Low strength	0.00	Fair Too Clayey	0.04
Up: Uly-----	75	Fair Low content of organic matter Water erosion	0.12 0.90	Poor Low strength	0.00	Good	
Tobin-----	25	Fair Water erosion	0.90	Poor Low strength Shrink-swell	0.00 0.91	Good	
W: Water-----	100	Not rated		Not rated		Not rated	

RECREATIONAL INTERPRETATIONS
Ford County, Kansas

Recreation

The soils of the survey area are rated in the following tables according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables 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 also are important. Soils that are 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.

The information in this table can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

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 ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Not limited		Not limited		Somewhat limited Slope	0.50
025PF: Penden-----	100	Not limited		Not limited		Somewhat limited Slope	0.87
025PG: Penden-----	100	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope	1.00
025RF: Roxbury-----	100	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
025SA: Satanta-----	100	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
047BK: Coly-----	75	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
Tobin-----	25	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
047HD: Harney-----	80	Not limited		Not limited		Somewhat limited Slope	0.00
Uly-----	20	Not limited		Not limited		Somewhat limited Slope	0.00
047HO: Hord-----	100	Very limited Flooding	1.00	Not limited		Not limited	
047PA: Plate-----	100	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone Flooding	0.98
		Depth to saturated zone	0.98				0.60
047ZE: Lesho-----	100	Very limited Flooding Salinity	1.00 0.13	Somewhat limited Salinity	0.13	Somewhat limited Flooding Salinity	0.60 0.13
069AN: Bridgeport-----	100	Not rated		Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Very limited		Somewhat limited		Somewhat limited	
		Flooding Salinity	1.00 0.13	Salinity	0.13	Flooding Salinity	0.60 0.13
Lesho, occasionally flooded-----	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding Salinity	1.00 0.13	Salinity	0.13	Flooding Salinity	0.60 0.13
069ME: Penden-----	100	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope	1.00
069PA: Pratt-----	100	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Somewhat limited Slope Too sandy	0.50 0.37
069RN: Richfield-----	100	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.00
069SA: Satanta-----	100	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
069SB: Satanta-----	100	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.00
069UB: Ulysses-----	100	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.00
069UC: Ulysses-----	100	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.87 0.50
083HO: Hord-----	100	Very limited Flooding	1.00	Not limited		Not limited	
083KP: Kim-----	60	Not limited		Not limited		Somewhat limited	

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Penden-----	40	Not limited		Not limited		Slope Gravel content Somewhat limited Slope	0.87 0.04 0.87
083RZ: Bridgeport-----	100	Not limited		Not limited		Somewhat limited Slope	0.50
097AT: Attica-----	100	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy Slope	0.96 0.13
097CO: Coly-----	100	Not limited		Not limited		Very limited Slope	1.00
097CT: Coly-----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Tobin-----	30	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
119OZ: Otero-----	60	Not limited		Not limited		Somewhat limited Slope Gravel content Somewhat limited Slope Gravel content	0.87 0.05 0.87 0.06
Manter-----	40	Not limited		Not limited		Somewhat limited Too sandy Slope	0.37 0.13
119PR: Pratt-----	100	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy Slope	0.37 0.13
119RX: Roxbury-----	100	Very limited Flooding	1.00	Not limited		Not limited	
Ad: Tivoli-----	100	Very limited Too sandy Slope	1.00 0.84	Very limited Too sandy Slope	1.00 0.84	Very limited Too sandy Slope	1.00 1.00
An: Roxbury-----	100	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
ARR: Arkansas River-----	100	Not rated		Not rated		Not rated	
As: Lesho-----	75	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Lesho, Saline-----	25	Very limited Flooding Salinity	1.00 0.13	Somewhat limited Salinity	0.13	Somewhat limited Flooding Salinity	0.60 0.13
Bc: Bippus-----	100	Not limited		Not limited		Somewhat limited Slope	0.50
BOP: Borrow Pits-----	100	Not rated		Not rated		Not rated	
Br: Fluents-----	100	Very limited Flooding Slope	1.00 1.00	Very limited Slope Flooding	1.00 0.40	Very limited Flooding Slope	1.00 1.00
Ca: Canadian-----	100	Very limited Flooding	1.00	Not limited		Not limited	
Da: Dale-----	100	Very limited Flooding	1.00	Not limited		Not limited	
Dh: Dale-----	50	Very limited Flooding	1.00	Not limited		Not limited	
Humbarger-----	50	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Dl: Dalhart-----	70	Not limited		Not limited		Somewhat limited Slope	0.13
Lubbock-----	30	Not limited		Not limited		Not limited	
GRP: Pits-----	100	Not rated		Not rated		Not rated	

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ha: Harney-----	100	Not limited		Not limited		Not limited	
Hb: Harney-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Hd: Holdrege-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Hg: Holdrege-----	100	Not limited		Not limited		Not limited	
Ho: Holdrege-----	100	Not limited		Not limited		Not limited	
Hs: Holdrege-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
INL: Aquolls-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Restricted permeability	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
La: Las Animas, occasionally flooded-----	100	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.03	Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
Lc: Las Animas-----	80	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
Lincoln-----	20	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Flooding	1.00 0.60
Ln: Las Animas-----	50	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
Tivoli-----	50	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 1.00
Ls: Leshara-----	100	Very limited Flooding	1.00	Somewhat limited Restricted permeability	0.15	Somewhat limited Flooding	0.60
		Restricted permeability	0.15	Depth to saturated zone	0.03	Restricted permeability	0.15
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
Lt: Lesho, occasionally flooded-----	100	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
Lu: Lincoln-----	100	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy Flooding	1.00 0.40	Very limited Too sandy Flooding Slope	1.00 1.00 0.00
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Ma: Penden-----	100	Not limited		Not limited		Not limited	
Mb: Penden-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Mc: Penden-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Md: Penden-----	100	Not limited		Not limited		Somewhat limited Slope	0.87

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mf: Penden-----	85	Not limited		Not limited		Somewhat limited Slope	0.87
Campus-----	15	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.97 0.87
Mh: Penden-----	70	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
Tobin-----	30	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Mn: Campus-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Mp: Campus-----	70	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope Depth to bedrock	1.00 0.97
Canlon-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.06
Of: Attica-----	100	Not limited		Not limited		Not limited	
Or: Attica-----	100	Not limited		Not limited		Somewhat limited Slope	0.50
Os: Attica-----	60	Not limited		Not limited		Somewhat limited Slope	0.00
Carwile-----	40	Very limited Depth to saturated zone Restricted permeability	1.00 0.94	Very limited Depth to saturated zone Restricted permeability	1.00 0.94	Very limited Depth to saturated zone Restricted permeability	1.00 0.94
Ot: Otero-----	100	Not limited		Not limited		Somewhat limited Slope Gravel content	0.50 0.05
Po: Canlon-----	100	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.06
Pr: Pratt-----	100	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Very limited Slope Too sandy	1.00 0.37
Pt: Pratt-----	60	Somewhat limited Too sandy Slope	0.37 0.16	Somewhat limited Too sandy Slope	0.37 0.16	Very limited Slope Too sandy	1.00 0.37
Tivoli-----	40	Somewhat limited Too sandy Slope	0.92 0.16	Somewhat limited Too sandy Slope	0.92 0.16	Very limited Slope Too sandy	1.00 0.92
Ra: Ness-----	100	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 0.50 0.45	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 0.50 0.45	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 0.50 0.45
Sb: Pratt-----	70	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Very limited Slope Too sandy	1.00 0.37
Humbarger-----	30	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Sp: Spearville-----	100	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39
Sr: Spearville-----	100	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability Slope	0.39 0.00
Tv: Tivoli-----	100	Very limited Too sandy Slope	1.00 0.84	Very limited Too sandy Slope	1.00 0.84	Very limited Too sandy Slope	1.00 1.00

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ua: Uly-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Ub: Uly-----	100	Not limited		Not limited		Somewhat limited Slope	0.87
Uc: Uly-----	70	Not limited		Not limited		Somewhat limited Slope	0.87
Coly-----	30	Not limited		Not limited		Somewhat limited Slope	0.87
Uh: Uly-----	60	Not limited		Not limited		Somewhat limited Slope	0.00
Harney-----	40	Not limited		Not limited		Somewhat limited Slope	0.00
Un: Uly-----	70	Not limited		Not limited		Somewhat limited Slope	0.00
Harney-----	30	Not limited		Not limited		Somewhat limited Slope	0.00
Up: Uly-----	75	Not limited		Not limited		Somewhat limited Slope	0.87
Tobin-----	25	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
W: Water-----	100	Not rated		Not rated		Not rated	

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Not limited		Not limited	
025PF: Penden-----	100	Not limited		Not limited	
025PG: Penden-----	100	Not limited		Somewhat limited Slope	0.37
025RF: Roxbury-----	100	Not limited		Somewhat limited Flooding	0.60
025SA: Satanta-----	100	Somewhat limited Dusty	0.50	Not limited	
047BK: Coly-----	75	Not limited		Somewhat limited Slope	0.00
Tobin-----	25	Not limited		Somewhat limited Flooding	0.60
047HD: Harney-----	80	Not limited		Not limited	
Uly-----	20	Not limited		Not limited	
047HO: Hord-----	100	Not limited		Not limited	
047PA: Platte-----	100	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone Flooding Droughty	0.75 0.60 0.57
047ZE: Lesho-----	100	Not limited		Somewhat limited Flooding Salinity	0.60 0.13
069AN: Bridgeport-----	100	Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Not limited		Somewhat limited Flooding Salinity	0.60 0.13
Lesho, occasionally flooded-----	40	Not limited		Somewhat limited Flooding Salinity	0.60 0.13
069ME: Penden-----	100	Not limited		Somewhat limited Slope	0.37
069PA: Pratt-----	100	Somewhat limited Too sandy	0.37	Not limited	
069RN: Richfield-----	100	Somewhat limited Dusty	0.50	Not limited	
069SA: Satanta-----	100	Somewhat limited Dusty	0.50	Not limited	
069SB: Satanta-----	100	Somewhat limited Dusty	0.50	Not limited	
069UB: Ulysses-----	100	Somewhat limited Dusty	0.50	Not limited	
069UC: Ulysses-----	100	Somewhat limited Dusty	0.50	Not limited	
083HO: Hord-----	100	Not limited		Not limited	
083KP: Kim-----	60	Not limited		Not limited	
Penden-----	40	Not limited		Not limited	
083RZ: Bridgeport-----	100	Not limited		Not limited	
097AT: Attica-----	100	Somewhat limited Too sandy	0.96	Not limited	
097CO: Coly-----	100	Not limited		Not limited	
097CT: Coly-----	70	Somewhat limited		Very limited	

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Tobin-----	30	Slope Somewhat limited Flooding	0.00 0.40	Slope Very limited Flooding	1.00 1.00
119OZ:					
Otero-----	60	Not limited		Not limited	
Manter-----	40	Not limited		Not limited	
119PR:					
Pratt-----	100	Somewhat limited Too sandy	0.37	Not limited	
119RX:					
Roxbury-----	100	Not limited		Not limited	
Ad:					
Tivoli-----	100	Very limited Too sandy	1.00	Somewhat limited Slope Droughty	0.84 0.64
An:					
Roxbury-----	100	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
ARR:					
Arkansas River-----	100	Not rated		Not rated	
As:					
Lesho-----	75	Not limited		Somewhat limited Flooding	0.60
Lesho, Saline-----	25	Not limited		Somewhat limited Flooding Salinity	0.60 0.13
Bc:					
Bippus-----	100	Not limited		Not limited	
BOP:					
Borrow Pits-----	100	Not rated		Not rated	
Br:					
Fluvents-----	100	Somewhat limited Flooding Slope	0.40 0.00	Very limited Flooding Slope	1.00 1.00
Ca:					
Canadian-----	100	Not limited		Not limited	
Da:					
Dale-----	100	Not limited		Not limited	
Dh:					
Dale-----	50	Not limited		Not limited	
Humbarger-----	50	Not limited		Somewhat limited Flooding	0.60
DL:					
Dalhart-----	70	Not limited		Not limited	
Lubbock-----	30	Not limited		Not limited	
GRP:					
Pits-----	100	Not rated		Not rated	
Ha:					
Harney-----	100	Not limited		Not limited	
Hb:					
Harney-----	100	Not limited		Not limited	
Hd:					
Holdrege-----	100	Not limited		Not limited	
Hg:					
Holdrege-----	100	Not limited		Not limited	
Ho:					
Holdrege-----	100	Not limited		Not limited	
Hs:					
Holdrege-----	100	Not limited		Not limited	
INL:					
Aquolls-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
La:					
Las Animas, occasionally flooded-----	100	Not limited		Somewhat limited Flooding Depth to saturated zone	 0.60 0.03

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Lc: Las Animas-----	80	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.03
Lincoln-----	20	Very limited Too sandy	1.00	Somewhat limited Flooding Too sandy	0.60 0.50
Ln: Las Animas-----	50	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.03
Tivoli-----	50	Very limited Too sandy	1.00	Somewhat limited Droughty	0.64
Ls: Leshara-----	100	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.03
Lt: Lesho, occasionally flooded-----	100	Not limited		Somewhat limited Flooding	0.60
Lu: Lincoln-----	100	Very limited Too sandy Flooding	1.00 0.40	Very limited Flooding Too sandy	1.00 0.50
M-W: Miscellaneous Water-	100	Not rated		Not rated	
Ma: Penden-----	100	Not limited		Not limited	
Mb: Penden-----	100	Not limited		Not limited	
Mc: Penden-----	100	Not limited		Not limited	
Md: Penden-----	100	Not limited		Not limited	
Mf: Penden-----	85	Not limited		Not limited	
Campus-----	15	Not limited		Somewhat limited Depth to bedrock	0.97
Mh: Penden-----	70	Not limited		Somewhat limited Slope	0.00
Tobin-----	30	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Mn: Campus-----	100	Not limited		Somewhat limited Depth to bedrock	0.97
Mp: Campus-----	70	Not limited		Somewhat limited Depth to bedrock Slope	0.97 0.00
Canlon-----	30	Somewhat limited Slope	0.02	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.93
Of: Attica-----	100	Not limited		Not limited	
Or: Attica-----	100	Not limited		Not limited	
Os: Attica-----	60	Not limited		Not limited	
Carwile-----	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Ot: Otero-----	100	Not limited		Not limited	
Po: Canlon-----	100	Very limited Slope	1.00	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.93
Pr: Pratt-----	100	Somewhat limited Too sandy	0.37	Not limited	
Pt: Pratt-----	60	Somewhat limited		Somewhat limited	

RECREATIONAL INTERPRETATIONS--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Tivoli-----	40	Too sandy	0.37	Slope	0.16
		Somewhat limited		Somewhat limited	
		Too sandy	0.92	Droughty	0.48
				Slope	0.16
Ra:					
Ness-----	100	Very limited		Very limited	
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Too clayey	0.50	Too clayey	1.00
Sb:					
Pratt-----	70	Somewhat limited	0.37	Not limited	
		Too sandy			
Humbarger-----	30	Not limited		Somewhat limited	
				Flooding	0.60
Sp:					
Spearville-----	100	Not limited		Not limited	
Sr:					
Spearville-----	100	Not limited		Not limited	
Tv:					
Tivoli-----	100	Very limited	1.00	Somewhat limited	
		Too sandy		Slope	0.84
				Droughty	0.64
Ua:					
Uly-----	100	Not limited		Not limited	
Ub:					
Uly-----	100	Not limited		Not limited	
Uc:					
Uly-----	70	Not limited		Not limited	
Coly-----	30	Not limited		Not limited	
Uh:					
Uly-----	60	Not limited		Not limited	
Harney-----	40	Not limited		Not limited	
Un:					
Uly-----	70	Not limited		Not limited	
Harney-----	30	Not limited		Not limited	
Up:					
Uly-----	75	Not limited		Not limited	
Tobin-----	25	Not limited		Somewhat limited	
				Flooding	0.60
W:					
Water-----	100	Not rated		Not rated	

WILDLIFE INTERPRETATIONS
Ford County, Kansas

Use and Explanation of Wildlife Interpretations

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the development of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, water, and living space. If any one of these elements is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area. If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants.

In the Wildlife Interpretations table, 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.

Suitability Ratings

The potential of the soil is rated good, fair, poor, or very poor.

Good - means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose.

Fair - means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results.

Poor - means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and requires intensive effort.

Very Poor - means that limitations are very severe for the designated element or kind of wildlife habitat. Habitat is difficult to create, improve, or maintain in most places, and management is difficult and requires intensive effort.

Description of Wildlife Habitat Elements

Openland habitat consists of croplands, pastures, 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. The kind of wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, killdeer, cottontail rabbit, red fox, and coyote.

Woodland habitat consists of hardwood or conifers, or a mixture of these and associated grasses, legumes and wild herbaceous plants. Examples of wildlife attracted to this habitat are wild turkey, thrushes, woodpeckers, owl, tree squirrels, raccoon, and deer.

Wetland habitat consists of water-tolerant plants in open, marshy or swampy, shallow water areas. Examples of wildlife attracted to this habitat are ducks, geese, herons, bitterns, rails, kingfishers, shorebirds, muskrat, mink, and beaver.

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 also are considerations. Examples of grain and seed crops are corn, wheat, oats, 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 also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, 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 also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

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 oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated good are Russian-olive, autumn-olive, and crabapple.

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 pine, spruce, fir, cedar, and 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 fragrant sumac, chokecherry, American plum, sand plum, and gorden currant.

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, wild millet, saltgrass, cordgrass, rushes, sedges, and cattails.

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, red fox and coyote.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, deer, cottontail rabbit, prairie chicken, meadowlark, quail, and pheasant.

WILDLIFE INTERPRETATIONS
Ford County, Kansas

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	Wood- land wild- life	Wetland wild- life	Range- land wild- life
025KB: KINGSDOWN-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
025PF: PENDEN-----	Fair	Good	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
025PG: PENDEN-----	Poor	Fair	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
025RF: ROXBURY-----	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Poor	Fair
025SA: SATANTA-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
047BK: COLY-----	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
TOBIN-----	Good	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	Good
047HD: HARNEY-----	Good	Good	Good	Poor	Poor	Good	Poor	Fair	Good	---	Poor	Good
ULY-----	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good
047HO: HORD-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
047PA: PLATTE-----	Fair	Good	Fair	Poor	Fair	Good	Fair	Good	Fair	Poor	Good	Fair
047ZE: LESHO-----	Fair	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
069AN: BRIDGEPORT-----	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
069LA: LAS ANIMAS-----	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Fair
LESHO-----	Fair	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
069ME: PENDEN-----	Poor	Fair	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
069PA: PRATT-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
069RN: RICHFIELD-----	Good	Good	Fair	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Fair
069SA: SATANTA-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
069SB: SATANTA-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
069UB: ULYSSES-----	Good	Good	Fair	---	---	Poor	Poor	Fair	Fair	---	Poor	Fair
069UC: ULYSSES-----	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Fair
083HO: HORD-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
083KP: KIM-----	Poor	Fair	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair

WILDLIFE INTERPRETATIONS--Continued
Ford County, Kansas

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	Wood- land wild- life	Wetland wild- life	Range- land wild- life
PENDEN-----	Fair	Good	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
083RZ: BRIDGEPORT-----	Fair	Good	Good	---	---	Fair	Poor	Very poor	Good	---	Very poor	Fair
097AT: ATTICA-----	Fair	Fair	Good	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
097CO: COLY-----	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
097CT: COLY-----	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
TOBIN-----	Good	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	Good
119OZ: OTERO-----	Poor	Fair	Fair	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
MANTER-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
119PR: PRATT-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
119RX: ROXBURY-----	Good	Good	Good	Fair	Fair	Fair	Poor	Fair	Good	Fair	Poor	Fair
Ad: TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
An: ROXBURY-----	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Poor	Fair
ARR: ARKANSAS RIVER--	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor	Poor	Very poor
As: LESHO-----	Fair	Fair	Fair	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
LESHO, SALINE---	Fair	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
Bc: BIPPUS-----	Fair	Good	Good	---	Very poor	Good	Very poor	Very poor	Good	---	Very poor	Good
BOP: BORROW PITS-----	---	---	---	---	---	---	---	---	---	---	---	---
Br: FLUVENTS-----	Poor	Poor	Fair	Poor	Good	---	Poor	Very poor	Poor	Fair	Very poor	Fair
Ca: CANADIAN-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
Da: DALE-----	Good	Good	Fair	---	---	Good	Poor	Very poor	Good	---	Very poor	Fair
Dh: DALE-----	Good	Good	Fair	---	---	Good	Poor	Very poor	Good	---	Very poor	Fair
HUMBARGER-----	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
Dl: DALHART-----	Fair	Good	Fair	---	---	Poor	Poor	Very poor	Fair	---	Very poor	Poor
LUBBOCK-----	Good	Good	Fair	---	---	Poor	Poor	Fair	Fair	---	Poor	Fair

WILDLIFE INTERPRETATIONS--Continued
Ford County, Kansas

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	Wood- land wild- life	Wetland wild- life	Range- land wild- life
GRP: PITS-----	Very poor	Very poor	Poor	Poor	Poor	Poor	Very poor	Fair	Very poor	Very poor	Poor	Poor
Ha: HARNEY-----	Good	Good	Good	Poor	Poor	Good	Poor	Fair	Good	---	Poor	Good
Hb: HARNEY-----	Good	Good	Good	Poor	Poor	Good	Poor	Fair	Good	---	Poor	Good
Hd: HOLDREGE-----	Good	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
Hg: HOLDREGE-----	Good	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
Ho: HOLDREGE-----	Good	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
Hs: HOLDREGE-----	Good	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
INL: AQUOLLS-----	---	---	---	---	---	---	---	---	---	---	---	---
La: LAS ANIMAS-----	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	Good
Lc: LAS ANIMAS-----	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	Good
LINCOLN-----	Fair	Fair	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
Ln: LAS ANIMAS-----	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	Good
TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
Ls: LESHARA-----	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	Good
Lt: LESHO-----	Fair	Fair	Fair	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
Lu: LINCOLN-----	Poor	Fair	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
M-W: MISCELLANEOUS WATER-----	---	---	---	---	---	---	---	---	---	---	---	---
Ma: PENDEN-----	Fair	Good	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
Mb: PENDEN-----	Fair	Good	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
Mc: PENDEN-----	Fair	Good	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
Md: PENDEN-----	Fair	Good	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
Mf: PENDEN-----	Fair	Good	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair
CAMPUS-----	Fair	Good	Good	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Fair
Mh: PENDEN-----	Poor	Fair	Fair	---	---	Poor	Very poor	Poor	Fair	---	Very poor	Fair

WILDLIFE INTERPRETATIONS--Continued
Ford County, Kansas

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	Wood- land wild- life	Wetland wild- life	Range- land wild- life
TOBIN-----	Good	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	Good
Mn: CAMPUS-----	Fair	Good	Good	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Fair
Mp: CAMPUS-----	Poor	Fair	Good	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Fair
CANLON-----	Very poor	Poor	Poor	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
Of: ATTICA-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
Or: ATTICA-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
Os: ATTICA-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
CARWILE-----	Fair	Good	Good	---	---	Good	Good	Fair	Good	---	Fair	Good
Ot: OTERO-----	Poor	Fair	Fair	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
Po: CANLON-----	Very poor	Poor	Poor	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
Pr: PRATT-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
Pt: PRATT-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
Ra: NESS-----	Poor	Poor	Poor	---	---	Poor	Fair	Good	Poor	---	Good	Poor
Sb: PRATT-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
HUMBARGER-----	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
Sp: SPEARVILLE-----	Good	Good	Fair	---	---	Poor	Poor	Good	Fair	---	Fair	Fair
Sr: SPEARVILLE-----	Fair	Good	Fair	---	---	Poor	Poor	Fair	Fair	---	Poor	Fair
Tv: TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
Ua: ULY-----	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good
Ub: ULY-----	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
Uc: ULY-----	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
COLY-----	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
Uh: ULY-----	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good

WILDLIFE INTERPRETATIONS--Continued
Ford County, Kansas

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	Wood- land wild- life	Wetland wild- life	Range- land wild- life
HARNEY-----	Good	Good	Good	Poor	Poor	Good	Poor	Fair	Good	---	Poor	Good
Un: ULY-----	Good	Good	Good	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Good
HARNEY-----	Good	Good	Good	Poor	Poor	Good	Poor	Fair	Good	---	Poor	Good
Up: ULY-----	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
TOBIN-----	Good	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	Good
W: WATER-----	---	---	---	---	---	---	---	---	---	---	---	---

YIELDS PER ACRE OF PASTURE AND HAYLAND
Ford County, Kansas

Use and Explanation of Pastureland and Hayland Interpretations

This subsection provides information concerning the suitability of soils for the production of pasture and hayland. This subsection may contain pasture and hayland suitability groupings, land capability and yield estimates, yield estimates for individual grasses or legumes, or other information pertaining to the production of forage.

Pasture and Hayland Suitability Groupings

Soils are placed in pasture and hayland groups according to their suitability for the production of forage. The soils in each group are enough alike to be suited to the same grasses or legumes, to have similar limitations and hazards, to require similar management, and to have similar productivity and other responses to management. Thus, the pasture and hayland suitability group is a convenient way of grouping the soils for their management. If used, these groupings are identified and described in other reports in the subsection.

Yield Estimates

The average yields per acre that can be expected of the principal pasture or hayland crops, under a high level of management, are presented in this subsection. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall or other climatic factors. The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation are also important management practices.

The Pasture and Hayland table show yield estimates in tons per acre and animal unit months for pasture and hayland groups. An animal unit month is the amount of forage required by one animal unit (AU) for 30 days. On animal unit (AU) is one (1000 pound) mature cow and a calf up to weaning age (usually six months of age) or their equivalent. The Natural Resources Conservation Service uses 900 pounds of air dry forage as the amount needed to meet this requirement. To maintain a healthy and vigorous plant community, the degree of use should never be greater than 50 percent. Therefore only 25 percent of the total biomass grown is considered consumed by the grazing animal. Animal Unit Months can be converted to air dry pounds per acre production by multiplying the AUM by 30 days, then by 30 pounds per day, and then by four. This figure is the amount of total forage production.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil in the Nontechnical Description section. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay	
	N	I	N	I
			Tons	Tons
025KB: Kingsdown-----	3e	3e	2.50	6.00
025PF: Penden-----	4e	---	---	---
025PG: Penden-----	6e	---	---	---
025RF: Roxbury-----	2w	2w	3.50	6.50
025SA: Satanta-----	2c	2e	---	5.00
047BK: Coly-----	4e	4e	---	4.00
Tobin-----	2w	---	---	---
047HD: Harney-----	2e	2e	---	5.50
Uly-----	2e	2e	2.40	5.00
047HO: Hord-----	2c	1	3.00	6.50
047PA: Platte-----	4w	4w	2.00	4.00
047ZE: Lesho-----	4s	3s	2.00	4.00
069AN: Bridgeport-----	5w	---	---	---
069LA: Las Animas, occasionally flooded-----	4w	3w	---	---
Lesho, occasionally flooded-----	4s	3s	---	---
069ME: Penden-----	6e	---	---	---
069PA: Pratt-----	3e	3e	---	5.50
069RN: Richfield-----	2e	2e	---	5.00
069SA: Satanta-----	2c	1	---	6.00
069SB: Satanta-----	2e	2e	---	5.00
069UB: Ulysses-----	2e	2e	---	5.00
069UC: Ulysses-----	3e	3e	---	4.00
083HO: Hord-----	2c	1	3.00	6.50
083KP: Kim-----	4e	3e	---	3.50
Penden-----	3e	---	---	---
083RZ: Bridgeport-----	2e	2e	---	5.50
097AT: Attica-----	2e	---	3.00	6.00

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay	
	N	I	N	I
			Tons	Tons
097CO: Coly-----	4e	4e	---	4.00
097CT: Coly-----	6e	---	---	---
Tobin-----	5w	---	---	---
119OZ: Otero-----	4e	3e	---	3.50
Manter-----	4e	3e	---	4.50
119PR: Pratt-----	3e	3e	---	5.50
119RX: Roxbury-----	2c	1	3.00	7.00
Ad: Tivoli-----	7e	---	---	---
An: Roxbury-----	5w	---	---	---
ARR: Arkansas River-----	8w	---	---	---
As: Lesho-----	3w	---	2.80	5.00
Lesho, Saline-----	4s	3s	2.00	4.00
Bc: Bippus-----	3e	3e	---	---
BOP: Borrow Pits-----	---	---	---	---
Br: Fluvents-----	6w	---	---	---
Ca: Canadian-----	2e	---	3.50	---
Da: Dale-----	2c	---	5.50	---
Dh: Dale-----	2c	---	5.50	---
Humbarger-----	2w	2w	3.00	6.00
Dl: Dalhart-----	2e	2e	---	---
Lubbock-----	2c	1	---	6.50
GRP: Pits-----	8s	---	---	---
Ha: Harney-----	2c	1	---	6.50
Hb: Harney-----	2e	2e	---	5.50
Hd: Holdrege-----	2e	2e	2.30	6.00
Hg: Holdrege-----	2c	1	2.50	6.50
Ho: Holdrege-----	2c	1	2.50	6.50
Hs: Holdrege-----	2e	2e	2.30	6.00

YIELDS PER ACRE OF PASTURE AND HAYLAND--Continued
Ford County, Kansas

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(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay	
	N	I	N	I
			Tons	Tons
INL: Aquolls-----	5w	---	---	---
La: Las Animas, occasionally flooded-----	3w	3w	---	5.00
Lc: Las Animas-----	4w	3w	---	5.00
Lincoln-----	6s	---	---	---
Ln: Las Animas-----	3w	3w	---	5.00
Tivoli-----	6e	---	---	---
Ls: Leshara-----	2w	2w	4.50	5.00
Lt: Lesho, occasionally flooded-----	3w	---	2.80	5.00
Lu: Lincoln-----	7w	---	---	---
M-W: Miscellaneous Water-----	---	---	---	---
Ma: Penden-----	2c	1	---	---
Mb: Penden-----	2e	2e	---	---
Mc: Penden-----	3e	2e	---	---
Md: Penden-----	3e	---	---	---
Mf: Penden-----	4e	---	---	---
Campus-----	4e	---	---	---
Mh: Penden-----	6e	---	---	---
Tobin-----	5w	---	---	---
Mn: Campus-----	3e	3e	---	---
Mp: Campus-----	6e	---	---	---
Canlon-----	7s	---	---	---
Of: Attica-----	2e	---	3.00	6.50
Or: Attica-----	3e	---	3.00	6.00
Os: Attica-----	3e	---	3.00	6.50
Carwile-----	2w	---	---	---
Ot: Otero-----	4e	4e	---	2.50
Po: Canlon-----	7s	---	---	---
Pr: Pratt-----	4e	3e	---	5.50

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay	
	N	I	N	I
			Tons	Tons
Pt: Pratt-----	4e	3e	---	5.50
Tivoli-----	6e	---	---	---
Ra: Ness-----	6w	---	---	---
Sb: Pratt-----	6e	4e	---	5.50
Humbarger-----	2w	2w	3.00	6.00
Sp: Spearville-----	2s	2s	---	6.00
Sr: Spearville-----	3e	3e	---	5.00
Tv: Tivoli-----	7e	---	---	---
Ua: Uly-----	2e	2e	2.40	5.00
Ub: Uly-----	3e	3e	1.90	4.50
Uc: Uly-----	4e	---	---	---
Coly-----	3e	3e	---	4.50
Uh: Uly-----	2e	2e	2.40	5.00
Harney-----	2e	2e	---	5.50
Un: Uly-----	2e	2e	2.40	5.00
Harney-----	3e	---	---	---
Up: Uly-----	4e	3e	1.90	4.50
Tobin-----	2w	---	---	---
W: Water-----	---	---	---	---

CONSERVATION TREE AND SHRUB MANAGEMENT
Ford County, Kansas

A Conservation Tree/Shrub Suitability Group (CTSG), formerly Windbreak Suitability Group, is a physiographic unit or area having similar climatic and edaphic characteristics that control the selection and height growth of trees and shrubs.

In this table, the Conservation Tree and Shrub Grouping is expressed as a group index number. The group index for Conservation Tree and Shrub groups (CTSG) are a guide for species best suited for different kinds of soil and for prediction height, growth, and effectiveness. The groupings can be used when selection woody plants for windbreaks, wildlife plantings riparian buffers, reforestation, other environmental plantings, recreation, landscaping, wetland restoration or enhancement and critical area plantings. CTSG's are developed to assure satisfactory species selection and adaptation to specific conditions of soil, climate and physiography. CTSG's are a guide for selection species best suited for different kinds of soil and prediction height growth and effectiveness.

All soil series mapped in the state have been placed in 10 groups of similar soil characteristics. Groups 1, 2, 3, 4, 6, and 9 are further divided into subgroups. In addition, all groups provide information by Major Land Resource Areas.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters a tree or shrub may be well or poorly suited because of soil characteristics. Each tree or shrub also has definable potentials of height growth depending on the factors just mentioned. Accurate definitions of potential heights are necessary for proper windbreak planning and design.

Windbreaks protect livestock, buildings, roads and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low-growing and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

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. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

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.

Windbreaks are often planted on land that did not grow trees originally. Knowledge of how trees perform on such land can be gained only by observing and recording their performance where trees have been planted and survived. The problem is compounded by the fact that many favorite windbreak species are not indigenous to the areas in which they are planted.

The Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups shows the adapted species listing for each group index number. Showing the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates are based on measurements and observation of established plantings that have been given adequate care. This information should be used to determine the placement of a windbreak, the area protected and the arrangement of species.

A number of attributes are included in the CTSG species tables for each group number found in this section of the Field Office Technical Guide. These attributes were rated subjectively and assigned a relative value to further assist those unfamiliar with individual species characteristics or desirability for the intended use. Definitions and explanations can be found. 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. See part 537 of the National Forestry Manual for additional information.

In the Tree and Shrub Management table interpretive ratings are given for various aspects of forest and conservation tree and shrub management. Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. Well suited indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. Moderately well suited indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable and fair performance can be expected. Some maintenance is needed. Poorly suited indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. Unsited indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest and conservation tree and shrub management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet. Also, in the Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups.

Ratings in the columns suitability for hand planting and suitability for mechanical planting are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column suitability for mechanical site preparation (surface) are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsited to this management activity. The part of the soil from the surface to a depth of about 1-foot is considered in the ratings.

Ratings in the column suitability for mechanical site preparation (deep) are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column potential for seedling mortality are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality. See the National Forestry Manual, Subpart B for criteria used in rating management concerns. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

CONSERVATION TREE AND SHRUB MANAGEMENT
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
025KB: Kingsdown-----	5	Well suited	Well suited	Well suited	Well suited	Low
025PF: Penden-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
025PG: Penden-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
025RF: Roxbury-----	1K	Well suited	Well suited	Well suited	Well suited	Low
025SA: Satanta-----	3	Well suited	Well suited	Well suited	Well suited	Low
047BK: Coly-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Tobin-----	1K	Well suited	Well suited	Well suited	Well suited	Low
047HD: Harney-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Uly-----	3	Well suited	Well suited	Well suited	Well suited	Low
047HO: Hord-----	1	Well suited	Well suited	Well suited	Well suited	Low
047PA: Platte-----	1K	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Low
047ZE: Lesho-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction Salinity
069AN: Bridgeport-----	1K	Not rated	Not rated	Not rated	Not rated	Not rated
069LA: Las Animas, occasionally flooded-----	2K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction Salinity Moderate
Lesho, occasionally flooded-----	1K	Well suited	Well suited	Well suited	Well suited	Soil reaction Salinity
069ME: Penden-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
069PA: Pratt-----	7	Well suited	Well suited	Well suited	Well suited	Low
069RN: Richfield-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
069SA: Satanta-----	3	Well suited	Well suited	Well suited	Well suited	Low
069SB: Satanta-----	3	Well suited	Well suited	Well suited	Well suited	Low
069UB: Ulysses-----	3	Well suited	Well suited	Well suited	Well suited	Low
069UC: Ulysses-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
083HO: Hord-----	1	Well suited	Well suited	Well suited	Well suited	Low
083KP: Kim-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Penden-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Lime Soil reaction
083RZ: Bridgeport-----	1	Well suited	Well suited	Well suited	Well suited	Low
097AT: Attica-----	5	Well suited	Well suited	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
097CO: Coly-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
097CT: Coly-----	8	Well suited	Moderately suited Slope	Poorly suited Slope	Poorly suited Slope	Moderate Soil reaction Low
Tobin----- 119OZ:	1	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction Low
Otero-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction Low
Manter-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
119PR: Pratt-----	7	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
119RX: Roxbury-----	1	Well suited	Well suited	Well suited	Well suited	Low
Ad: Tivoli-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
An: Roxbury-----	1K	Well suited	Well suited	Well suited	Well suited	Low
ARR: Arkansas River-----		Not rated	Not rated	Not rated	Not rated	Not rated
As: Lesho-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction Moderate Soil reaction Salinity
Lesho, Saline-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Bc: Bippus-----	3	Well suited	Well suited	Well suited	Well suited	Not rated
BOP: Borrow Pits-----		Not rated	Not rated	Not rated	Not rated	Low
Br: Fluvents-----	1K	Well suited	Moderately suited Slope	Poorly suited Slope	Poorly suited Slope	Low
Ca: Canadian-----	1	Well suited	Well suited	Well suited	Well suited	Low
Da: Dale-----	1	Well suited	Well suited	Well suited	Well suited	Low
Dh: Dale-----	1	Well suited	Well suited	Well suited	Well suited	Low
Humbarger-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Dl: Dalhart-----	5	Well suited	Well suited	Well suited	Well suited	Low
Lubbock-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
GRP: Pits-----		Not rated	Not rated	Not rated	Not rated	Not rated
Ha: Harney-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Hb: Harney-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Hd: Holdrege-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Hg: Holdrege-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
Ho: Holdrege-----	3	Well suited	Well suited	Well suited	Well suited	Low
Hs: Holdrege-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
INL: Aquolls-----		Well suited	Well suited	Well suited	Well suited	High Wetness Soil reaction
La: Las Animas, occasionally flooded-----	2K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Lc: Las Animas-----	2K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Lincoln-----	1K	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Moderate Soil reaction
Ln: Las Animas-----	2K	Well suited	Well suited	Well suited	Well suited	Soil reaction
Tivoli-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Moderate Soil reaction Low
Ls: Leshara-----	1K	Well suited	Well suited	Well suited	Well suited	Low
Lt: Lesho, occasionally flooded-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Lu: Lincoln-----	1K	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Moderate Soil reaction
M-W: Miscellaneous Water-		Not rated	Not rated	Not rated	Not rated	Not rated
Ma: Penden-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Mb: Penden-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Mc: Penden-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Md: Penden-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Mf: Penden-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Campus-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Lime Soil reaction Moderate
Mh: Penden-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Lime Soil reaction Moderate
Tobin-----	1	Well suited	Well suited	Well suited	Well suited	Soil reaction Low
Mn: Campus-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Mp: Campus-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Canlon-----	10	Well suited	Poorly suited	Poorly suited	Unsuited	Lime Soil reaction Moderate

CONSERVATION TREE AND SHRUB MANAGEMENT
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
			Slope	Slope	Restrictive layer Slope	Soil reaction
Of: Attica-----	5	Well suited	Well suited	Well suited	Well suited	Low
Or: Attica-----	5	Well suited	Well suited	Well suited	Well suited	Low
Os: Attica-----	5	Well suited	Well suited	Well suited	Well suited	Low
Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High
Ot: Otero-----	5	Well suited	Well suited	Well suited	Well suited	Wetness Moderate Soil reaction
Po: Canlon-----	10	Well suited	Unsuited Slope	Poorly suited Slope	Unsuited Restrictive layer Slope	Moderate Soil reaction
Pr: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Pt: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Tivoli-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
Ra: Ness-----	10	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
Sb: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Humbarger-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Sp: Spearville-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Sr: Spearville-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Tv: Tivoli-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
Ua: Uly-----	3	Well suited	Well suited	Well suited	Well suited	Low
Ub: Uly-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Uc: Uly-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Coly-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Uh: Uly-----	3	Well suited	Well suited	Well suited	Well suited	Low
Harney-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Un: Uly-----	3	Well suited	Well suited	Well suited	Well suited	Low
Harney-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Up: Uly-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Tobin-----	1	Well suited	Well suited	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
W: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated

ENGINEERING INDEX PROPERTIES
Ford County, Kansas

Engineering Index Properties table gives the engineering classifications and the range of index properties for the layers of each soil in the survey area. Depth to the upper and lower boundaries of each layer is indicated. 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 15 percent or more, 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, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998). The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-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 particle-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. If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in Engineering Index Properties table.

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 particle-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 generally omitted in the table.

ENGINEERING INDEX PROPERTIES--Continued
Ford County, Kansas

(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		
	In				Pct	Pct					Pct	
025KB: Kingsdown-----	0-10	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	65-100	30-55	15-26	NP-7
	10-22	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	65-100	25-55	15-26	NP-7
	22-60	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	55-100	15-55	15-26	NP-7
025PF: Penden-----	0-16	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	16-28	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	60-90	30-45	11-25
	28-60	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
025PG: Penden-----	0-16	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	16-28	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	60-90	30-45	11-25
	28-60	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
025RF: Roxbury-----	0-21	Silt loam	CL	A-6	0	0	100	100	90-100	70-90	30-35	10-15
	21-36	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	10-20
	36-60	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	85-100	65-95	30-45	10-20
025SA: Satanta-----	0-11	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-100	60-75	20-35	5-15
	11-32	Clay loam	CL, SC	A-6, A-7	0	0	100	95-100	75-100	40-80	30-45	11-20
	32-60	Clay loam	CL, SC	A-4, A-6	0	0	100	95-100	65-100	40-80	20-35	5-15
047BK: Coly-----	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	6-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
	Tobin-----	0-15	Silt loam	CL	A-6	0	0	100	100	90-100	70-90	30-35
15-60		Silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
047HD: Harney-----	0-6	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	15-22
	6-34	Silty clay loam	CH, CL	A-7-6	0	0	100	100	95-100	85-100	40-60	15-35
	34-60	Silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	10-20
Uly-----	0-8	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
	8-30	Silty clay loam	CL, ML, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	30-60	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
047HO: Hord-----	0-12	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	20-35	3-18
	12-42	Silty clay loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	25-40	8-23
	42-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	25-40	6-21
047PA: Platte-----	0-9	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	60-95	22-35	4-15
	9-60	Coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-95	25-65	5-15	15-20	NP
047ZE: Lesho-----	0-15	Clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	75-95	35-45	15-22
	15-55	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-22
	55-60	Sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	55-75	5-35	---	NP
069AN: Bridgeport----	0-12	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	65-90	20-35	4-19
	12-60	Silt loam, silty clay loam, loam	CL	A-4, A-6	0	0	100	100	90-100	65-100	25-40	8-20
069LA: Las Animas, occasionally flooded-----	0-11	Sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-85	40-55	20-25	NP-5
	11-60	Sand	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	90-100	55-90	25-55	20-25	NP-5
	Lesho, occasionally flooded-----	0-14	Clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	75-95	35-45
	14-25	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-22
	25-60	Coarse sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	55-75	5-35	---	NP
069ME: Penden-----	0-15	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	15-34	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	60-90	30-45	11-25
	34-60	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
069PA: Pratt-----	0-11	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	11-26	Loamy fine sand	SP-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	26-60	Loamy fine sand	SC-SM, SM	A-2, A-3	0	0	100	95-100	80-100	5-35	---	NP
069RN: Richfield-----	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	70-100	20-35	2-15
	6-19	Silty clay loam	CH, CL	A-7-6	0	0	100	100	95-100	90-100	40-60	20-35
	19-60	Silt loam	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	100	95-100	75-100	25-45	5-20
069SA: Satanta-----	0-10	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-100	60-75	20-35	5-15
	10-32	Clay loam	CL, SC	A-6, A-7	0	0	100	95-100	75-100	40-80	30-45	11-20
	32-50	Silt loam	CL, SC	A-4, A-6	0	0	100	95-100	65-100	40-80	20-35	5-15
069SB: Satanta-----	0-10	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-100	60-75	20-35	5-15
	10-32	Clay loam	CL, SC	A-6, A-7	0	0	100	95-100	75-100	40-80	30-45	11-20
	32-50	Silt loam	CL, SC	A-4, A-6	0	0	100	95-100	65-100	40-80	20-35	5-15
069UB: Ulysses-----	0-7	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	7-25	Silt loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	25-43	11-20
	25-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15

ENGINEERING INDEX PROPERTIES--Continued
Ford County, Kansas

(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		
	In				Pct	Pct					Pct	
069UC: Ulysses-----	0-6	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	6-16	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	25-43	11-20
	16-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
083HO: Hord-----	0-12	Silty clay loam	CL	A-4, A-6	0	0	100	100	100	90-100	20-35	8-18
	12-37	Silty clay loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	25-40	8-23
	37-60	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	25-40	6-21
083KP: Kim-----	0-4	Silty clay loam	CL	A-6	0	0-5	90-100	75-100	70-90	50-75	30-40	10-20
	4-60	Clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	80-100	75-100	50-95	35-85	20-40	5-15
Penden-----	0-16	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	16-38	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	60-90	30-45	11-25
	38-60	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
083RZ: Bridgeport----	0-22	Silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	30-40	11-20
	22-60	Silty clay loam	CL	A-4, A-6	0	0	100	100	90-100	65-100	25-40	8-20
097AT: Attica-----	0-10	Loamy fine sand	SM, SP-SM	A-2	0	0	100	95-100	70-100	10-35	---	NP
	10-30	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-55	15-26	NP-7
	30-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	85-100	80-100	70-100	20-50	15-26	NP-7
097CO: Coly-----	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	5-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
097CT: Coly-----	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	5-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
Tobin-----	0-25	Silt loam	CL	A-6	0	0	100	100	90-100	70-90	30-35	10-15
	25-32	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	32-60	Silt loam	CL	A-6, A-7	0	0	100	100	85-100	70-95	30-45	10-20
119OZ: Otero-----	0-8	Fine sandy loam	SM	A-2	0	0-1	95-100	75-100	50-80	25-35	20-25	NP-5
	8-60	Fine sandy loam	SM	A-2	0	0-1	90-100	75-100	40-80	25-35	15-25	NP-5
Manter-----	0-9	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	75-100	45-85	25-55	20-30	NP-10
	9-23	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	75-100	50-85	30-55	15-25	NP-10
	23-60	Loamy fine sand	SM	A-1, A-2, A-4	0	0	95-100	75-100	40-85	15-50	---	NP
119PR: Pratt-----	0-8	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	8-24	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	24-60	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	---	NP
119RX: Roxbury-----	0-20	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	70-90	30-35	10-15
	20-60	Silty clay loam	CL	A-4, A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	10-20
Ad: Tivoli-----	0-6	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
	6-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
An: Roxbury-----	0-20	Silt loam	CL	A-6	0	0	100	100	90-100	70-90	30-35	10-15
	20-52	Silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	10-20
	52-60	Silt loam	CL		0	0	100	100	85-100	65-95	30-45	10-20
ARR: Arkansas River-	0-6	Sand	SP, SP-SM, SW, SW-SM	A-1, A-3	---	0-5	80-100	75-100	30-60	0-10	---	NP
	6-60	Stratified coarse sand to sandy loam	SM, SP, SP-SM	A-1, A-2, A-3	---	0-5	80-100	75-100	40-70	0-20	---	NP
As: Lesho-----	0-18	Clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	65-85	35-45	15-22
	18-32	Clay loam	CL	A-4, A-6, A-7-6	0	0	100	100	85-100	65-95	25-45	7-22
	32-60	Sand	SM, SP-SM	A-1, A-2, A-3, A-4	0	0	100	95-100	30-85	5-45	---	NP
Lesho, Saline--	0-19	Clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	75-95	35-45	15-22
	19-35	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-22
	35-60	Sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	55-75	5-35	---	NP
Bc: Bippus-----	0-17	Clay loam	CL	A-4, A-6	0	0	100	95-100	85-98	50-80	22-40	7-20
	17-62	Clay loam	CL, SC, SC-SM	A-4, A-6	0	0	100	95-100	85-98	36-75	22-40	7-20
BOP: Borrow Pits----	---	---	---	---	---	---	---	---	---	---	---	---
Br: Fluents-----	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-90	20-35	5-15
	6-60	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	20-40	5-20
Ca: Canadian-----	0-15	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	98-100	94-100	36-65	15-26	NP-7
	15-38	Fine sandy loam	CL, ML, SC, SM	A-4	0	0	100	98-100	94-100	36-85	15-31	NP-10
	38-50	Loamy fine sand	SM, CL, ML, SC	A-2, A-4	0	0	100	98-100	90-100	15-85	15-31	NP-10
Da: Dale-----	0-24	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	65-98	25-35	5-15
	24-60	Silty clay loam	CL	A-4, A-6, A-7	0	0	95-100	95-100	90-100	65-98	30-43	8-20

ENGINEERING INDEX PROPERTIES--Continued
Ford County, Kansas

(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		
	In				Pct	Pct					Pct	
Dh:												
Dale-----	0-24	Clay loam	CL	A-6, A-7	0	0	95-100	95-100	90-100	80-98	33-43	12-20
	24-60	Silty clay loam	CL	A-4, A-6, A-7	0	0	95-100	95-100	90-100	65-98	30-43	8-20
Humbarger-----	0-22	Clay loam	CL	A-6	0	0	95-100	90-100	90-100	70-90	30-40	10-20
	22-54	Clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	90-100	80-95	40-80	20-40	5-20
Dl:												
Dalhart-----	0-7	Fine sandy loam	CL, ML, SC, SM	A-4	0	0	100	98-100	94-100	36-60	15-30	NP-10
	7-44	Sandy clay loam	CL, SC	A-6	0	0	100	98-100	90-100	40-80	31-40	10-18
	44-60	Clay loam	CL, ML, SC, SM	A-4, A-6	0	0	75-97	75-97	75-90	36-65	15-37	NP-16
Lubbock-----	0-8	Clay loam	CL	A-6	0	0	100	100	95-100	65-100	30-40	10-20
	8-44	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	20-35
GRP:												
Pits-----	0-60	Gravelly sand	GP-GM, SM, SP, SP-SM	A-1, A-2, A-3	---	0-5	45-100	40-100	0-80	0-40	0-14	NP
Ha:												
Harney-----	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	5-20
	5-33	Silty clay	CH, CL	A-7-6	0	0	100	100	95-100	85-100	40-60	15-35
	33-60	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	10-20
Hb:												
Harney-----	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	5-20
	6-30	Silty clay	CH, CL	A-7-6	0	0	100	100	95-100	85-100	40-60	15-35
	30-66	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	10-20
Hd:												
Holdrege-----	0-11	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	85-100	15-25	NP-5
	11-33	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	33-48	Silty clay loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	25-40	9-17
	48-66	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
Hg:												
Holdrege-----	0-11	Loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	20-45	2-20
	11-33	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	33-48	Silty clay loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	25-40	9-17
	48-66	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
Ho:												
Holdrege-----	0-14	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	20-45	2-20
	14-25	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	25-30	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	25-40	9-17
	30-60	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
Hs:												
Holdrege-----	0-11	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	20-45	2-20
	11-33	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	33-48	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	25-40	9-17
	48-66	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
INL:												
Aquolls-----	0-72	Variable			---	---	---	---	---	---	---	---
La:												
Las Animas, occasionally flooded-----	0-11	Sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	95-100	70-90	40-60	20-25	NP-5
	11-32	Sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	90-100	55-90	25-55	20-25	NP-5
	32-60	Stratified gravelly sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	75-100	5-25	---	NP
Lc:												
Las Animas-----	0-11	Sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	95-100	70-90	40-60	20-25	NP-5
	11-32	Stratified loamy fine sand to very fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	90-100	55-90	25-55	20-25	NP-5
	32-60	Stratified coarse sand to sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	75-100	5-25	---	NP
Lincoln-----	0-6	Sand	SM, SP-SM	A-2, A-3	0	0	100	98-100	82-98	5-20	---	NP
	6-60	Stratified fine sand to clay loam	SM, SP-SM	A-2, A-3	0	0	100	98-100	82-100	5-35	---	NP
Ln:												
Las Animas-----	0-11	Sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	95-100	70-90	40-60	20-25	NP-5
	11-32	Stratified loamy fine sand to very fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	90-100	55-90	25-55	20-25	NP-5
	32-60	Stratified coarse sand to sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	75-100	5-25	---	NP
Tivoli-----	0-6	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
	6-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
Ls:												
Leshara-----	0-26	Clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-80	30-45	11-25
	26-45	Clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	60-90	20-35	3-15
	45-60	Coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	85-100	65-95	30-65	3-15	---	NP

ENGINEERING INDEX PROPERTIES--Continued
Ford County, Kansas

(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		
	In				Pct	Pct					Pct	
Lt: Lesho, occasionally flooded-----	0-14	Clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	65-85	35-45	15-22
	14-25	Clay loam	CL	A-4, A-6, A-7-6	0	0	100	100	85-100	65-95	25-45	7-22
	25-60	Sand	SM, SP-SM	A-1, A-2, A-3, A-4	0	0	100	95-100	30-85	5-45	---	NP
Lu: Lincoln-----	0-6	Sand	SM, SP-SM	A-2, A-3	0	0	100	98-100	82-98	5-20	---	NP
	6-60	Stratified sand to gravel	SM, SP-SM	A-2, A-3	0	0	100	98-100	82-100	5-35	---	NP
M-W: Miscellaneous Water-----	---	---	---	---	---	---	---	---	---	---	---	---
Ma: Penden-----	0-17	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	17-46	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
Mb: Penden-----	0-17	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	17-46	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
Mc: Penden-----	0-17	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	17-46	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
Md: Penden-----	0-14	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	14-32	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	60-90	30-45	11-25
	32-60	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
Mf: Penden-----	0-17	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	17-46	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
Campus-----	0-7	Clay loam	CL	A-6, A-7	0	0	100	100	85-100	60-90	30-45	11-22
	7-19	Clay loam	CL, ML	A-4, A-6, A-7	0	0	100	100	75-95	50-80	33-45	8-20
	19-22	Clay loam	CL, ML, SC, SM	A-4, A-6, A-7	0	0	90-100	70-100	65-85	40-80	33-45	8-20
	22-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Mh: Penden-----	0-17	Clay loam	CL	A-6, A-7-6	0	0	100	100	85-100	65-95	30-45	11-25
	17-46	Clay loam	CL	A-6, A-7-6	0	0	100	100	75-100	55-75	30-45	11-25
Tobin-----	0-14	Silt loam	CL	A-6	0	0	100	100	90-100	70-90	30-35	10-15
	14-66	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	30-45	10-20
Mn: Campus-----	0-7	Clay loam	CL	A-6, A-7	0	0	100	100	85-100	60-90	30-45	11-22
	7-19	Clay loam	CL, ML	A-4, A-6, A-7	0	0	100	100	75-95	50-80	33-45	8-20
	19-22	Clay loam	CL, ML, SC, SM	A-4, A-6, A-7	0	0	90-100	70-100	65-85	40-80	33-45	8-20
	22-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Mp: Campus-----	0-7	Clay loam	CL	A-6, A-7	0	0	100	100	85-100	60-90	30-45	11-22
	7-19	Clay loam	CL, ML	A-4, A-6, A-7	0	0	100	100	75-95	50-80	33-45	8-20
	19-22	Clay loam	CL, ML, SC, SM	A-4, A-6, A-7	0	0	90-100	70-100	65-85	40-80	33-45	8-20
	22-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Canlon-----	0-5	Loam	CL, CL-ML	A-4, A-6	0	0	90-100	75-100	65-100	50-90	20-40	4-20
	5-12	Clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	75-100	55-100	50-95	35-85	20-40	4-20
	12-13	Unweathered bedrock			---	---	---	---	---	---	---	---
Of: Attica-----	0-14	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-20	NP-4
	14-45	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-55	15-26	NP-7
	45-50	Loamy fine sand	SM, SC-SM	A-2, A-4	0	0	85-100	80-100	70-100	20-50	15-26	NP-7
Or: Attica-----	0-14	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-20	NP-4
	14-45	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-55	15-26	NP-7
	45-50	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	85-100	80-100	70-100	20-50	15-26	NP-7
Os: Attica-----	0-14	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-20	NP-4
	14-45	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-55	15-26	NP-7
	45-50	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	85-100	80-100	70-100	20-50	15-26	NP-7
Carwile-----	0-11	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	98-100	90-100	36-60	15-26	NP-7
	11-28	Sandy clay loam	CL, SC	A-6, A-7	0	0	100	100	90-100	36-90	35-50	14-26
	28-48	Clay	CH, CL, SC	A-6, A-7	0	0	100	100	90-100	40-95	35-70	14-38
	48-60	Clay	CH, CL, SC	A-4, A-6, A-7	0	0	100	100	90-100	36-95	25-70	7-38
Ot: Otero-----	0-9	Fine sandy loam	SM	A-2	0	0-1	95-100	75-100	50-80	25-35	20-25	NP-5
	9-60	Loamy fine sand	SM	A-2	0	0-1	90-100	75-100	40-80	25-35	15-25	NP-5

ENGINEERING INDEX PROPERTIES--Continued
Ford County, Kansas

(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		
					Pct	Pct					Pct	
Po: Canlon-----	0-5	Loam	CL, CL-ML	A-4, A-6	0	0	90-100	75-100	65-100	50-90	20-40	4-20
	5-12	Gravelly loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	75-100	55-100	50-95	35-85	20-40	4-20
	12-13	Unweathered bedrock			---	---	---	---	---	---	---	---
Pr: Pratt-----	0-9	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	9-28	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	28-54	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	---	NP
Pt: Pratt-----	0-9	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	9-28	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	28-54	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	---	NP
Tivoli-----	0-6	Loamy fine sand	SM	A-2	0	0	100	95-100	90-100	15-35	---	NP
	6-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
Ra: Ness-----	0-40	Clay	CH	A-7-6	0	0	100	100	95-100	90-100	50-70	30-45
	40-63	Silty clay loam	CL, MH, ML, CH	A-4, A-6, A- 7-6	0	0	100	100	95-100	90-100	30-55	8-30
Sb: Pratt-----	0-12	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	12-40	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	40-60	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	---	NP
Humbarger-----	0-22	Silty clay loam	CL	A-6	0	0	95-100	90-100	90-100	70-90	30-40	10-20
	22-30	Clay loam	CL	A-4, A-6	0	0	95-100	90-100	80-95	55-85	25-40	8-20
	30-60	Loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	90-100	80-95	40-80	20-40	5-20
Sp: Spearville-----	0-6	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	11-20
	6-21	Silty clay	CH	A-7-6	0	0	100	100	95-100	90-100	50-70	25-45
	21-26	Silty clay loam	CH, CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-55	15-30
	26-52	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	30-45	11-20
Sr: Spearville-----	0-6	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	11-20
	6-21	Silty clay	CH	A-7-6	0	0	100	100	95-100	90-100	50-70	25-45
	21-26	Silty clay loam	CH, CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-55	15-30
	26-52	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	30-45	11-20
Tv: Tivoli-----	0-6	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
	6-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
Ua: Uly-----	0-8	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
	8-21	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	21-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
Ub: Uly-----	0-8	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
	8-21	Silty clay loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	21-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
Uc: Uly-----	0-6	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
	6-19	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	19-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
Coly-----	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	6-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
Uh: Uly-----	0-9	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
	9-17	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	17-71	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
Harney-----	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	5-20
	6-30	Silty clay	CH, CL	A-7-6	0	0	100	100	95-100	85-100	40-60	15-35
	30-66	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	10-20
Un: Uly-----	0-9	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
	9-17	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	17-71	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
Harney-----	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	5-20
	6-30	Silty clay	CH, CL	A-7-6	0	0	100	100	95-100	85-100	40-60	15-35
	30-66	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	30-45	10-20
Up: Uly-----	0-9	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
	9-17	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	17-71	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
Tobin-----	0-14	Silt loam	CL	A-6	0	0	100	100	90-100	70-90	30-35	10-15
	14-66	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
W: Water-----	---	---	---	---	---	---	---	---	---	---	---	---

Physical Properties table 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.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this 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.

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 earth moving operations.

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 ($K \rightarrow \text{sat}$) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity ($K \rightarrow \text{sat}$). 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 Physical Properties 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 Physical Properties 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 six 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. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

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.

Explanation of Wind Erodibility Groups

Soil erodibility by wind is directly related to the percentage of dry non-erodible surface soil aggregates larger than 0.84 mm in diameter. From this percentage, the wind erodibility index (I-factor) is determined. The I-factor is an expression of the stability of these soil aggregates against breakdown by tillage and abrasion from wind erosion. Soils are placed in Wind Erodibility Groups (WEG) having similar percentages of dry soil aggregates larger than 0.84 mm as shown in the following table.

WEG	Properties of Soil Surface Layer	Dry Soil Aggregates >0.84mm Percent	Wind Erodibility Index T/Ac/Yr (I)
1	Very fine sand, fine sand, sand, or coarse sand	1 2 3 5 7	310 1/ 250 220 180 160
2	Loamy very fine sand, loamy fine sand, loamy sand, loamy coarse sand, organic soil materials.	10	134
3	Very fine sandy loam, fine sandy loam, sandy loam, or coarse sandy loam.	25	86
4	Clay, silty clay, non-calcareous clay loam, or silty clay loam with >35 percent clay content.	25	86
4L	Calcareous 2/ loam, silt loam, clay loam, or silty clay loam.	25	86
5	Non-calcareous loam and silt loam with <20 percent clay content, or sandy clay loam, sandy clay, and hemic 3/ organic soil materials.	40	56
6	Non-calcareous loam and silt loam with >20 percent clay content, or non-calcareous clay loam with <35 percent clay content.	45	48
7	Silt, non-calcareous silty clay loam with >35 percent clay content and fibric 3/ organic soil material.	50	38
8	Soils not suitable for cultivation due to coarse fragments or wetness; wind erosion is not a problem.	--	0

1/ The "I" values for WEG 1 vary from 160 for coarse sands to 310 for very fine sands. Use an "I" of 220 as an average figure. For coarser sand that has gravel, use a lower figure. For a soil that has no gravel and very fine sand, use a higher figure. (Modification for coarse fragments is preparation.)

2/ Calcareous is a strongly or violently effervescent reaction to cold dilute (1N) HCL.

3/ See Soil Taxonomy for definition.

PHYSICAL PROPERTIES OF THE SOILS--Continued
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(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. 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)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
025KB: Kingsdown----	0-10	67	20	8-18	1.40-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	10-22	67	20	8-18	1.45-1.55	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.24	.24			
	22-60	62	26	5-18	1.45-1.55	2.00-6.00	0.08-0.19	0.0-2.9	0.2-0.5	.24	.24			
025PF: Penden-----	0-16	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	16-28	34	37	24-35	1.35-1.45	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
	28-60	34	37	24-35	1.40-1.50	0.60-2.00	0.14-0.19	3.0-5.9	0.1-0.5	.32	.32			
025PG: Penden-----	0-16	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	16-28	34	37	24-35	1.35-1.45	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
	28-60	34	37	24-35	1.40-1.50	0.60-2.00	0.14-0.19	3.0-5.9	0.1-0.5	.32	.32			
025RF: Roxbury-----	0-21	10	68	18-27	1.35-1.45	0.60-2.00	0.22-0.24	0.0-2.9	2.0-3.0	.32	.32	5	4L	86
	21-36	7	66	18-35	1.40-1.50	0.60-2.00	0.17-0.22	3.0-5.9	1.0-2.0	.43	.43			
	36-60	7	66	18-35	1.40-1.50	0.60-2.00	0.17-0.22	3.0-5.9	0.5-1.0	.43	.43			
025SA: Satanta-----	0-11	43	40	10-25	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	11-32	35	38	18-35	1.35-1.45	0.60-2.00	0.15-0.19	3.0-5.9	0.7-1.0	.32	.32			
	32-60	39	42	10-28	1.40-1.50	0.60-2.00	0.14-0.19	0.0-2.9	0.3-0.7	.32	.32			
047BK: Coly-----	0-6	11	68	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	6-60	11	68	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
Tobin-----	0-15	10	68	18-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-4.0	.32	.32	5	6	48
	15-60	9	64	18-35	1.35-1.50	0.60-2.00	0.17-0.20	3.0-5.9	1.0-4.0	.32	.32			
047HD: Harney-----	0-6	20	48	28-35	1.30-1.40	0.60-2.00	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32	5	7	38
	6-34	7	54	35-42	1.35-1.50	0.20-0.60	0.12-0.19	3.0-5.9	0.5-1.5	.43	.43			
	34-60	20	50	24-35	1.20-1.35	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.5	.43	.43			
Uly-----	0-8	11	67	17-27	1.20-1.30	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-30	7	68	20-30	1.20-1.30	0.60-2.00	0.18-0.22	0.0-2.9	0.7-1.5	.43	.43			
	30-60	10	68	18-27	1.10-1.20	0.60-2.00	0.18-0.22	0.0-2.9	0.2-0.7	.43	.43			
047HO: Hord-----	0-12	11	67	17-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	12-42	7	65	20-35	1.35-1.45	0.60-2.00	0.17-0.22	0.0-2.9	1.0-2.0	.32	.32			
	42-60	9	67	18-30	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.4-1.0	.43	.43			
047PA: Platte-----	0-9	44	41	10-20	1.50-1.70	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.28	.28	5	4L	86
	9-60	92	7	0-3	1.90-2.00	20.00-99.90	0.02-0.04	0.0-2.9	0.0-0.3	.10	.15			
047ZE: Lesho-----	0-15	35	33	28-35	1.30-1.40	0.20-0.60	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	4	4L	86
	15-55	34	37	22-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.28	.28			
	55-60	96	2	1-5	1.45-1.55	6.00-20.00	0.03-0.07	0.0-2.9	0.0-0.5	.15	.15			
069AN: Bridgeport---	0-12	11	68	14-27	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	5	4L	86
	12-60	9	67	18-30	1.40-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
069LA: Las Animas, occasionally flooded-----	0-11	67	20	8-18	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	11-60	91		8-18	1.55-1.65	2.00-6.00	0.09-0.19	0.0-2.9	0.0-1.0	.24	.24			
Lesho, occasionally flooded-----	0-14	35	33	28-35	1.30-1.40	0.20-0.60	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	4	4L	86
	14-25	34	37	22-35	1.35-1.45	0.20-0.60	0.15-0.20	3.0-5.9	---	.32	.32			
	25-60	91	6	1-5	1.45-1.55	6.00-20.00	0.02-0.07	0.0-2.9	---	.15	.15			
069ME: Penden-----	0-15	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	0.5-1.0	.28	.28	5	4L	86
	15-34	34	37	24-35	1.40-1.50	0.60-2.00	0.15-0.20	3.0-5.9	0.0-1.0	.32	.32			
	34-60	34	37	24-35	1.40-1.50	0.60-2.00	0.14-0.19	3.0-5.9	0.1-0.5	.32	.32			
069PA: Pratt-----	0-11	79	16	2-8	1.45-1.55	6.00-20.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	11-26	86	7	4-11	1.45-1.55	6.00-20.00	0.09-0.17	0.0-2.9	0.1-0.5	.17	.17			
	26-60	79	16	1-8	1.50-1.60	6.00-20.00	0.05-0.10	0.0-2.9	0.0-0.3	.17	.17			
069RN: Richfield----	0-6	29	54	10-24	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-19	7	54	35-42	1.40-1.50	0.20-0.60	0.11-0.20	6.0-8.9	0.5-1.2	.37	.37			
	19-60	24	50	18-35	1.25-1.35	0.60-2.00	0.14-0.22	3.0-5.9	0.2-0.5	.43	.43			
069SA: Satanta-----	0-10	43	40	10-25	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	10-32	35	38	18-35	1.35-1.45	0.60-2.00	0.15-0.19	3.0-5.9	0.7-1.0	.32	.32			
	32-50	27	54	10-28	1.40-1.50	0.60-2.00	0.14-0.19	0.0-2.9	0.3-0.7	.32	.32			
069SB: Satanta-----	0-10	43	40	10-25	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	10-32	35	38	18-35	1.35-1.45	0.60-2.00	0.15-0.19	3.0-5.9	0.7-1.0	.32	.32			
	32-50	27	54	10-28	1.40-1.50	0.60-2.00	0.14-0.19	0.0-2.9	0.3-0.7	.32	.32			
069UB: Ulysses-----	0-7	12	70	10-27	1.15-1.25	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	7-25	9	64	21-32	1.20-1.35	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
	25-60	10	68	18-27	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.5	.43	.43			
069UC: Ulysses-----	0-6	12	70	10-27	1.15-1.25	0.60-2.00	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-16	7	66	21-32	1.25-1.35	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
	16-60	10	68	18-27	1.25-1.35	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			

PHYSICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas: Maintenance needed

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. 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)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
083HO:														
Hord-----	0-12	7	62	27-35	1.35-1.45	0.60-2.00	0.21-0.23	0.0-2.9	1.0-3.0	.32	.32	5	7	38
	12-37	7	65	20-35	1.35-1.45	0.60-2.00	0.17-0.22	0.0-2.9	1.0-2.0	.32	.32			
	37-60	8	68	18-30	1.35-1.45	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
083KP:														
Kim-----	0-4	20	48	28-35	1.30-1.40	0.20-0.60	0.17-0.19	0.0-2.9	0.5-1.0	.32	.32	5	4L	86
	4-60	35	38	20-35	1.40-1.50	0.60-2.00	0.14-0.19	0.0-2.9	0.0-0.5	.32	.32			
Penden-----	0-16	20	48	28-35	1.35-1.45	0.60-2.00	0.21-0.23	3.0-5.9	0.5-1.0	.32	.32	5	4L	86
	16-38	34	37	24-35	1.40-1.50	0.60-2.00	0.15-0.20	3.0-5.9	---	.32	.32			
	38-60	34	37	24-35	1.30-1.40	0.60-2.00	0.14-0.19	3.0-5.9	---	.32	.32			
083RZ:														
Bridgeport---	0-22	7	64	27-32	1.35-1.45	0.60-2.00	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32	5	4L	86
	22-60	8	68	18-30	1.40-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.7-1.0	.43	.43			
097AT:														
Attica-----	0-10	87	7	2-10	1.50-1.60	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	10-30	67	20	8-18	1.50-1.60	2.00-6.00	0.12-0.17	0.0-2.9	0.2-0.8	.24	.24			
	30-60	63	26	4-18	1.50-1.60	2.00-6.00	0.08-0.16	0.0-2.9	0.1-0.5	.24	.28			
097CO:														
Coly-----	0-5	11	68	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	5-60	11	68	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
097CT:														
Coly-----	0-5	11	68	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	5-60	11	68	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
Tobin-----	0-25	10	68	18-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-4.0	.32	.32	5	6	48
	25-32	9	64	18-35	1.35-1.50	0.60-2.00	0.17-0.20	3.0-5.9	1.0-4.0	.32	.32			
	32-60	9	64	18-35	1.35-1.45	0.60-2.00	0.18-0.22	3.0-5.9	0.5-0.5	.43	.43			
119OZ:														
Otero-----	0-8	65	20	10-20	1.40-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	8-60	62	26	5-18	1.45-1.55	2.00-6.00	0.12-0.17	0.0-2.9	---	.20	.20			
Manter-----	0-9	65	20	10-20	1.35-1.45	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	9-23	66	20	9-18	1.40-1.50	2.00-6.00	0.12-0.17	0.0-2.9	0.2-0.5	.20	.20			
	23-60	84	6	5-15	1.50-1.60	2.00-6.00	0.08-0.13	0.0-2.9	0.0-0.5	.17	.17			
119PR:														
Pratt-----	0-8	79	16	2-8	1.45-1.55	6.00-20.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-24	86	7	4-11	1.45-1.55	6.00-20.00	0.09-0.14	0.0-2.9	0.1-0.5	.17	.17			
	24-60	79	16	1-8	1.50-1.60	6.00-20.00	0.05-0.10	0.0-2.9	0.0-0.3	.17	.17			
119RX:														
Roxbury-----	0-20	10	68	18-27	1.35-1.45	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	4L	86
	20-60	7	66	18-35	1.40-1.50	0.60-2.00	0.17-0.22	3.0-5.9	0.5-1.0	.43	.43			
Ad:														
Tivoli-----	0-6	93	1	1-10	1.40-1.50	6.00-20.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	6-60	93	1	1-10	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
An:														
Roxbury-----	0-20	10	68	18-27	1.35-1.45	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	4L	86
	20-52	9	64	18-35	1.35-1.45	0.60-2.00	0.21-0.23	3.0-5.9	1.0-2.0	.43	.43			
	52-60	9	64	18-35	1.35-1.45	0.60-2.00	0.17-0.22	3.0-5.9	0.0-1.0	.43	.43			
ARR:														
Arkansas	0-6	98	2	0-1	---	6.00-20.00	0.03-0.04	0.0-2.9	0.0-0.1	---	---	-	---	0
River-----	6-60			0-5	---	6.00-20.00	0.04-0.06	0.0-2.9	---	---	---			
As:														
Lesho-----	0-18	35	33	28-35	1.30-1.40	0.20-0.60	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	5	4L	86
	18-32	35	38	18-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.0-2.0	.32	.32			
	32-60	94	1	1-8	1.45-1.55	2.00-20.00	0.02-0.07	0.0-2.9	0.0-1.0	.15	.15			
Lesho, Saline	0-19	35	33	28-35	1.30-1.40	0.20-0.60	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	4	4L	86
	19-35	34	37	22-35	1.35-1.45	0.20-0.60	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
	35-60	96	2	1-5	1.45-1.55	6.00-20.00	0.02-0.07	0.0-2.9	0.0-0.5	.15	.15			
Bc:														
Bippus-----	0-17	36	39	15-35	1.40-1.50	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	5	4L	86
	17-62	35	38	20-35	1.45-1.55	0.60-2.00	0.12-0.20	3.0-5.9	0.5-1.0	.32	.32			
BOP:														
Borrow Pits--	---			---	---	---	---	---	---	---	---	-	---	---
Br:														
Fluvents-----	0-6	27	54	10-27	1.35-1.45	0.60-2.00	0.22-0.24	0.0-2.9	0.5-2.0	.32	.32	5	4L	86
	6-60	40	38	10-35	1.35-1.45	0.60-2.00	0.17-0.22	3.0-5.9	0.0-2.0	.43	.43			
Ca:														
Canadian-----	0-15	62	26	5-18	1.40-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	15-38	66	20	10-18	1.50-1.60	2.00-6.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	38-50	87	2	5-18	1.50-1.60	2.00-20.00	0.08-0.19	0.0-2.9	0.0-0.5	.24	.24			
Da:														
Dale-----	0-24	11	68	15-26	1.40-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	5	56
	24-60	7	66	18-35	1.50-1.60	0.60-2.00	0.17-0.22	3.0-5.9	0.5-2.0	.43	.43			
Dh:														
Dale-----	0-24	29	47	15-26	1.40-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	5	56
	24-60	7	66	18-35	1.50-1.60	0.60-2.00	0.17-0.22	3.0-5.9	0.5-2.0	.43	.43			
Humbarger----	0-22	34	37	27-32	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	5	4L	86
	22-54	37	41	12-32	1.40-1.50	0.60-2.00	0.11-0.19	0.0-2.9	0.5-2.0	.32	.32			
Dl:														
Dalhart-----	0-7	66	20	10-18	1.40-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	7-44	58	18	18-30	1.45-1.55	0.60-2.00	0.15-0.19	0.0-2.9	0.5-1.0	.32	.32			
	44-60	40	43	10-24	1.45-1.55	2.00-6.00	0.14-0.19	0.0-2.9	0.0-0.5	.24	.24			
Lubbock-----	0-8	35	34	27-35	1.30-1.40	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.28	.28	5	6	48
	8-44	7	53	35-45	1.35-1.45	0.20-0.60	0.09-0.20	6.0-8.9	0.5-1.0	.37	.37			

PHYSICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas: Maintenance needed

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. 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)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
GRP:														
Pits-----	0-60	95	1	0-8	1.70-2.00	6.00-20.00	0.02-0.09	0.0-2.9	0.0-0.5	.10	.17	2	8	0
Ha:														
Harney-----	0-5	24	51	22-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	5-33	8	53	35-42	1.40-1.50	0.20-0.60	0.11-0.20	3.0-5.9	0.5-2.0	.37	.37			
	33-60	18	52	24-35	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	0.2-0.5	.43	.43			
Hb:														
Harney-----	0-6	24	51	22-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	2.0-3.0	.32	.32	5	6	48
	6-30	8	53	35-42	1.40-1.50	0.20-0.60	0.11-0.20	3.0-5.9	0.5-2.0	.37	.37			
	30-66	18	52	24-35	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.5	.43	.43			
Hd:														
Holdrege-----	0-11	59	23	15-20	1.45-1.55	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	11-33	7	62	28-35	1.25-1.35	0.60-2.00	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	33-48	8	68	18-30	1.35-1.45	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
	48-66	14	69	15-20	1.45-1.55	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
Hg:														
Holdrege-----	0-11	37	43	15-25	1.45-1.55	0.60-2.00	0.20-0.22	3.0-5.9	1.0-3.0	.28	.28	5	6	48
	11-33	7	62	28-35	1.25-1.35	0.60-2.00	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	33-48	8	68	18-30	1.35-1.45	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
	48-66	14	69	15-20	1.40-1.50	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
Ho:														
Holdrege-----	0-14	11	69	15-25	1.40-1.60	0.60-2.00	0.22-0.24	3.0-5.9	1.0-3.0	.32	.32	5	6	48
	14-25	7	62	28-35	1.20-1.40	0.60-2.00	0.18-0.20	3.0-5.9	---	.43	.43			
	25-30	9	67	18-30	1.30-1.50	0.60-2.00	0.17-0.20	3.0-5.9	---	.43	.43			
	30-60	14	69	15-20	1.40-1.60	0.60-2.00	0.20-0.22	3.0-5.9	---	.43	.43			
Hs:														
Holdrege-----	0-11	11	69	15-25	1.40-1.50	0.60-2.00	0.22-0.24	3.0-5.9	1.0-3.0	.32	.32	5	6	48
	11-33	7	62	28-35	1.25-1.35	0.60-2.00	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	33-48	9	67	18-30	1.35-1.45	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
	48-66	14	69	15-20	1.40-1.50	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
INL:														
Aquolls-----	0-72			---	---	---	---	---	---	---	---	-	---	0
La:														
Las Animas, occasionally flooded-----	0-11	67	20	8-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	11-32	67	20	8-18	1.50-1.60	2.00-6.00	0.10-0.22	0.0-2.9	0.0-1.0	.28	.28			
	32-60	96	2	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
Lc:														
Las Animas---	0-11	67	20	8-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	11-32	63	24	8-18	1.50-1.60	2.00-6.00	0.09-0.19	0.0-2.9	0.0-1.0	.28	.28			
	32-60	96	2	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
Lincoln-----	0-6	96	2	0-5	1.40-1.50	6.00-20.00	0.05-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	220
	6-60	90	0	5-15	1.40-1.50	6.00-20.00	0.05-0.19	0.0-2.9	0.0-0.5	.15	.15			
Ln:														
Las Animas---	0-11	67	20	8-18	1.45-1.55	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	11-32	63	24	8-18	1.50-1.60	2.00-6.00	0.09-0.19	0.0-2.9	0.0-1.0	.28	.28			
	32-60	91	6	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
Tivoli-----	0-6	93	1	1-10	1.40-1.50	6.00-20.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	6-60	93	1	1-10	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
Ls:														
Leshara-----	0-26	27	42	27-35	1.25-1.35	0.20-0.60	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	4	6	48
	26-45	30	50	12-27	1.35-1.45	0.60-2.00	0.17-0.22	0.0-2.9	0.5-2.0	.43	.43			
	45-60	92	4	0-8	1.70-1.80	6.00-20.00	0.02-0.10	0.0-2.9	0.0-1.0	.15	.20			
Lt:														
Lesho, occasionally flooded-----	0-14	35	33	28-35	1.30-1.40	0.20-0.60	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	14-25	35	38	18-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	---	.32	.32			
	25-60	94	1	1-8	1.45-1.55	2.00-20.00	0.02-0.07	0.0-2.9	---	.15	.15			
Lu:														
Lincoln-----	0-6	96	2	0-5	1.40-1.50	6.00-20.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	220
	6-60	90	0	5-15	1.40-1.50	6.00-20.00	0.05-0.16	0.0-2.9	0.0-0.5	.17	.17			
M-W:														
Miscellaneous Water-----	---			---	---	---	---	---	---	---	---	-	---	---
Ma:														
Penden-----	0-17	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	17-46	34	37	24-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-1.0	.32	.32			
Mb:														
Penden-----	0-17	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	17-46	34	37	24-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-1.0	.32	.32			
Mc:														
Penden-----	0-17	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	17-46	34	37	24-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-1.0	.32	.32			
Md:														
Penden-----	0-14	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	14-32	34	37	24-35	1.40-1.50	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
	32-60	34	37	24-35	1.30-1.50	0.60-2.00	0.14-0.19	3.0-5.9	0.1-0.5	.32	.32			

PHYSICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas: Maintenance needed

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. 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)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
Mf:														
Penden-----	0-17	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	17-46	34	37	24-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-1.0	.32	.32			
Campus-----	0-7	35	33	28-35	1.25-1.35	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	2	4L	86
	7-19	35	38	18-35	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.5-2.0	.28	.32			
	19-22	35	38	18-35	1.40-1.50	0.60-2.00	0.15-0.19	0.0-2.9	0.5-1.0	.28	.32			
	22-23			---	---	---	---	---	---	---	---			
Mh:														
Penden-----	0-17	35	33	28-35	1.35-1.45	0.60-2.00	0.17-0.19	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	17-46	34	37	24-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-1.0	.32	.32			
Tobin-----	0-14	10	68	18-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	14-66	7	66	18-35	1.35-1.45	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
Mn:														
Campus-----	0-7	35	33	28-35	1.25-1.35	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	2	4L	86
	7-19	35	38	18-35	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.5-2.0	.28	.32			
	19-22	35	38	18-35	1.40-1.50	0.60-2.00	0.15-0.19	0.0-2.9	0.5-1.0	.28	.32			
	22-23			---	---	---	---	---	---	---	---			
Mp:														
Campus-----	0-7	35	33	28-35	1.25-1.35	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	2	4L	86
	7-19	35	38	18-35	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.5-2.0	.28	.32			
	19-22	35	38	18-35	1.40-1.50	0.60-2.00	0.15-0.19	0.0-2.9	0.5-1.0	.28	.32			
	22-23			---	---	---	---	---	---	---	---			
Canlon-----	0-5	42	38	12-27	1.35-1.45	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.32	.32	1	4L	86
	5-12	39	43	8-27	1.35-1.45	0.60-2.00	0.16-0.22	0.0-2.9	1.0-3.0	.32	.43			
	12-13			---	---	---	---	---	---	---	---			
Of:														
Attica-----	0-14	64	27	6-12	1.45-1.55	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24	-	3	86
	14-45	67	20	8-18	1.50-1.60	2.00-6.00	0.08-0.16	0.0-2.9	0.0-1.0	.24	.24			
	45-50	88	1	4-18	1.50-1.60	2.00-6.00	0.14-0.16	0.0-2.9	0.0-0.5	.24	.24			
Or:														
Attica-----	0-14	64	27	6-12	1.45-1.55	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	14-45	67	20	8-18	1.50-1.60	2.00-6.00	0.08-0.16	0.0-2.9	0.5-1.0	.24	.24			
	45-50	88	1	4-18	1.50-1.60	2.00-6.00	0.14-0.16	0.0-2.9	0.0-0.5	.24	.28			
Os:														
Attica-----	0-14	64	27	6-12	1.45-1.55	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	14-45	67	20	8-18	1.50-1.60	2.00-6.00	0.08-0.16	0.0-2.9	0.5-1.0	.24	.24			
	45-50	88	1	4-18	1.50-1.60	2.00-6.00	0.14-0.16	0.0-2.9	0.0-0.5	.24	.28			
Carwile-----	0-11	62	26	5-18	1.40-1.50	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	11-28	54	14	25-39	1.50-1.60	0.20-2.00	0.15-0.19	3.0-5.9	0.5-1.0	.37	.37			
	28-48	23	29	35-60	1.40-1.50	0.06-0.20	0.08-0.16	6.0-8.9	0.0-0.5	.37	.37			
	48-60	36	32	20-45	1.40-1.50	0.20-2.00	0.08-0.17	6.0-8.9	0.0-0.5	.37	.37			
Ot:														
Otero-----	0-9	65	20	10-20	1.40-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	9-60	87	2	5-18	1.45-1.55	2.00-6.00	0.08-0.17	0.0-2.9	0.0-0.5	.24	.24			
Po:														
Canlon-----	0-5	42	38	12-27	1.35-1.45	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32	1	4L	86
	5-12	43	40	8-27	1.40-1.50	0.60-2.00	0.16-0.22	0.0-2.9	1.0-3.0	.32	.43			
	12-13			---	---	---	---	---	---	---	---			
Pr:														
Pratt-----	0-9	79	16	2-8	1.45-1.55	6.00-20.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	9-28	86	7	4-11	1.45-1.55	6.00-20.00	0.09-0.17	0.0-2.9	0.0-0.5	.17	.17			
	28-54	79	16	1-8	1.50-1.60	6.00-20.00	0.05-0.10	0.0-2.9	0.0-0.5	.17	.17			
Pt:														
Pratt-----	0-9	79	16	2-8	1.45-1.55	6.00-20.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	9-28	86	7	4-11	1.45-1.55	6.00-20.00	0.09-0.17	0.0-2.9	0.0-0.5	.17	.17			
	28-54	79	16	1-8	1.50-1.60	6.00-20.00	0.05-0.10	0.0-2.9	0.0-0.5	.17	.17			
Tivoli-----	0-6	86	7	5-10	1.40-1.50	6.00-20.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	6-60	93	1	1-10	1.50-1.60	6.00-20.00	0.05-0.09	0.0-2.9	0.0-0.5	.15	.15			
Ra:														
Ness-----	0-40	22	28	40-60	1.35-1.45	0.00-0.06	0.09-0.13	6.0-8.9	1.0-3.0	.28	.28	5	4	86
	40-63	18	52	20-40	1.35-1.45	0.60-2.00	0.18-0.22	3.0-5.9	0.1-1.0	.28	.28			
Sb:														
Pratt-----	0-12	79	16	2-8	1.45-1.55	6.00-20.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	12-40	65	27	4-11	1.45-1.55	6.00-20.00	0.09-0.17	0.0-2.9	0.0-0.5	.17	.17			
	40-60	79	16	1-8	1.50-1.60	6.00-20.00	0.08-0.13	0.0-2.9	0.0-0.5	.17	.17			
Humbarger----	0-22	18	52	27-32	1.35-1.45	0.60-2.00	0.18-0.23	3.0-5.9	1.0-2.0	.32	.32	5	4L	86
	22-30	36	39	16-35	1.40-1.50	0.60-2.00	0.15-0.20	3.0-5.9	0.0-0.5	.32	.32			
	30-60	41	37	12-32	1.40-1.50	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.32	.32			
Sp:														
Spearville---	0-6	20	53	20-35	1.20-1.30	0.20-0.60	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32	5	7	38
	6-21	6	48	42-50	1.35-1.45	0.06-0.20	0.11-0.14	6.0-8.9	0.5-1.0	.32	.32			
	21-26	7	51	35-50	1.35-1.45	0.20-0.60	0.11-0.20	6.0-8.9	0.0-0.5	.43	.43			
	26-52	20	48	25-40	1.25-1.35	0.20-0.60	0.18-0.22	3.0-5.9	0.0-0.5	.43	.43			
Sr:														
Spearville---	0-6	20	53	20-35	1.20-1.30	0.20-0.60	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32	5	7	38
	6-21	6	48	42-50	1.35-1.45	0.06-0.20	0.11-0.14	6.0-8.9	0.5-1.0	.32	.32			
	21-26	7	51	35-50	1.35-1.45	0.20-0.60	0.11-0.20	6.0-8.9	0.0-0.5	.32	.32			
	26-52	20	48	25-40	1.25-1.35	0.20-0.60	0.18-0.22	3.0-5.9	0.0-0.5	.43	.43			
Tv:														
Tivoli-----	0-6	93	1	1-10	1.40-1.50	6.00-20.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	6-60	93	1	1-10	1.55-1.65	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			

PHYSICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas: Maintenance needed

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. 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)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
Ua:														
Uly-----	0-8	11	67	17-27	1.20-1.30	0.60-2.00	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	8-21	9	66	20-30	1.20-1.30	0.60-2.00	0.18-0.22	0.0-2.9	0.7-1.0	.43	.43			
	21-60	10	68	18-27	1.10-1.20	0.60-2.00	0.17-0.22	0.0-2.9	0.2-0.7	.43	.43			
Ub:														
Uly-----	0-8	11	67	17-27	1.20-1.30	0.60-2.00	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	8-21	7	68	20-30	1.20-1.30	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	21-60	10	68	18-27	1.10-1.20	0.60-2.00	0.17-0.22	0.0-2.9	0.2-0.7	.43	.43			
Uc:														
Uly-----	0-6	11	67	17-27	1.20-1.30	0.60-2.00	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-19	9	66	20-30	1.20-1.30	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	19-60	10	68	18-27	1.10-1.20	0.60-2.00	0.17-0.22	0.0-2.9	0.2-0.7	.43	.43			
Coly-----	0-6	11	68	18-24	1.35-1.45	0.60-2.00	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	5	4L	86
	6-60	11	68	18-24	1.35-1.45	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
Uh:														
Uly-----	0-9	11	67	17-27	1.20-1.30	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	9-17	9	66	20-30	1.20-1.30	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.43	.43			
	17-71	10	68	18-27	1.10-1.20	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Harney-----	0-6	24	51	22-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	6-30	8	53	35-42	1.35-1.45	0.20-0.60	0.11-0.20	3.0-5.9	0.5-2.0	.43	.43			
	30-66	18	52	24-35	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	0.0-1.0	.43	.43			
Un:														
Uly-----	0-9	11	67	17-27	1.20-1.30	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	9-17	9	66	20-30	1.20-1.30	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.43	.43			
	17-71	10	68	18-27	1.10-1.20	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Harney-----	0-6	24	51	22-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	6-30	8	53	35-42	1.35-1.45	0.20-0.60	0.11-0.20	3.0-5.9	0.5-2.0	.43	.43			
	30-66	18	52	24-35	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	0.0-1.0	.43	.43			
Up:														
Uly-----	0-9	11	67	17-27	1.20-1.30	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	9-17	9	66	20-30	1.20-1.30	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.43	.43			
	17-71	10	68	18-27	1.10-1.20	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Tobin-----	0-14	10	68	18-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	14-66	7	66	18-35	1.35-1.45	0.60-2.00	0.18-0.22	3.0-5.9	0.0-2.0	.43	.43			
W:														
Water-----	---			---	---	---	---	---	---	---	---	-	---	0

CHEMICAL PROPERTIES OF THE SOILS
Ford County, Kansas

The Chemical Properties table shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major 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. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major 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 and can be dissolved and removed by 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.

CHEMICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
025KB: Kingsdown-----	0-10	3.0-12	6.6-8.4	1-2	---	---	---
	10-22	3.0-11	7.4-8.4	1-2	---	---	---
	22-60	2.0-11	7.4-8.4	1-5	---	---	---
025PF: Penden-----	0-16	11-22	7.4-8.4	5-15	---	0.0-2.0	---
	16-28	9.0-21	7.9-8.4	15-30	---	0.0-2.0	---
	28-60	9.0-21	7.9-8.4	5-15	---	0.0-2.0	---
025PG: Penden-----	0-16	11-22	7.4-8.4	5-15	---	0.0-2.0	---
	16-28	9.0-21	7.9-8.4	15-30	---	0.0-2.0	---
	28-60	9.0-21	7.9-8.4	5-15	---	0.0-2.0	---
025RF: Roxbury-----	0-21	8.0-22	6.6-8.4	1-5	---	---	---
	21-36	7.0-21	7.4-8.4	1-5	---	---	---
	36-60	7.0-21	7.4-8.4	5-10	---	---	---
025SA: Satanta-----	0-11	4.0-16	6.1-7.8	---	---	---	---
	11-32	7.0-21	6.6-8.4	1-5	---	---	---
	32-60	4.0-17	7.4-8.4	1-5	---	---	---
047BK: Coly-----	0-6	7.0-16	7.4-8.4	---	0	0	0
	6-60	7.0-14	7.4-8.4	---	0	0	0
Tobin-----	0-15	7.0-19	5.6-7.8	---	---	---	---
	15-60	7.0-24	7.4-8.4	---	---	---	---
047HD: Harney-----	0-6	12-24	5.6-7.8	0	0	0	0
	6-34	14-25	6.1-8.4	0	0	0	0
	34-60	9.0-21	7.4-8.4	5-10	0	0	0
Uly-----	0-8	7.0-18	6.1-7.8	0	0	0	0
	8-30	8.0-18	6.1-8.4	1-5	0	0	0
	30-60	7.0-16	7.4-8.4	1-10	0	0	0
047HO: Hord-----	0-12	7.0-19	5.6-7.3	0	0	0	0
	12-42	8.0-21	6.1-7.8	0	0	0	0
	42-60	7.0-18	7.4-8.4	0-5	0	0	0
047PA: Platte-----	0-9	4.0-14	6.6-8.4	---	0	0.0-2.0	0
	9-60	0.0-2.0	6.6-8.4	---	0	0.0-2.0	0
047ZE: Lesho-----	0-15	11-22	7.4-9.0	---	---	2.0-8.0	1-5
	15-55	8.0-21	7.9-9.0	---	---	4.0-16.0	5-10
	55-60	0.0-3.0	7.4-9.0	---	---	2.0-8.0	5-10
069AN: Bridgeport-----	0-12	6.0-18	6.6-8.4	1-5	0	0	0
	12-60	7.0-18	7.4-8.4	5-10	0	0	0
069LA: Las Animas, occasionally flooded-----	0-11	3.0-11	7.4-9.0	1-5	---	2.0-8.0	---
	11-60	3.0-11	7.8-9.6	1-5	---	4.0-8.0	---
Lesho, occasionally flooded-----	0-14	11-22	7.4-9.0	1-5	---	2.0-8.0	---
	14-25	8.0-21	7.9-9.0	5-10	---	4.0-16.0	---
	25-60	0.0-3.0	7.4-9.0	5-10	---	2.0-8.0	---
069ME: Penden-----	0-15	11-22	7.4-8.4	5-15	---	0.0-2.0	0
	15-34	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
	34-60	9.0-21	7.9-8.7	15-30	---	0.0-2.0	0
069PA: Pratt-----	0-11	1.0-5.0	5.6-7.3	---	---	---	---
	11-26	1.0-7.0	5.6-7.3	---	---	---	---
	26-60	0.0-5.0	6.1-7.3	1-5	---	---	---
069RN: Richfield-----	0-6	10-30	6.6-7.8	0	0	0	0
	6-19	14-30	6.6-8.4	1-5	0	0	0
	19-60	10-25	7.9-9.0	5-10	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
069SA: Satanta-----	0-10	4.0-16	6.1-7.8	---	---	---	---
	10-32	7.0-21	6.6-8.4	1-5	---	---	---
	32-50	4.0-17	7.4-8.4	1-5	---	---	---
069SB: Satanta-----	0-10	4.0-16	6.1-7.8	---	---	---	---
	10-32	7.0-21	6.6-8.4	1-5	---	---	---
	32-50	4.0-17	7.4-8.4	1-5	---	---	---
069UB: Ulysses-----	0-7	4.0-18	6.6-7.8	---	---	---	---
	7-25	8.0-19	7.4-8.4	0-15	---	---	---
	25-60	7.0-16	7.9-8.4	0-15	---	---	---
069UC: Ulysses-----	0-6	4.0-18	6.6-7.8	---	---	---	---
	6-16	8.0-19	7.4-8.4	5-10	---	---	---
	16-60	7.0-16	7.9-8.4	10-15	---	---	---
083HO: Hord-----	0-12	11-23	5.6-7.3	0	0	0	0
	12-37	8.0-21	6.1-7.8	1-5	0	0	0
	37-60	10-25	7.4-8.4	1-5	0	0	0
083KP: Kim-----	0-4	11-22	7.4-8.4	5-10	---	0	---
	4-60	8.0-21	7.9-8.4	10-15	---	0.0-4.0	---
Penden-----	0-16	11-22	7.4-8.4	15-30	---	0.0-2.0	0
	16-38	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
	38-60	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
083RZ: Bridgeport-----	0-22	11-21	6.6-8.4	1-5	0	0	0
	22-60	7.0-18	7.4-8.4	5-10	0	0	0
097AT: Attica-----	0-10	1.0-7.0	5.6-7.3	---	---	---	---
	10-30	3.0-11	5.6-6.5	---	---	---	---
	30-60	1.0-11	6.1-7.8	---	---	---	---
097CO: Coly-----	0-5	7.0-16	7.4-8.4	---	0	0	0
	5-60	7.0-14	7.4-8.4	---	0	0	0
097CT: Coly-----	0-5	7.0-16	7.4-8.4	---	0	0	0
	5-60	7.0-14	7.4-8.4	---	0	0	0
Tobin-----	0-25	7.0-19	5.6-7.8	---	---	---	---
	25-32	7.0-24	7.4-8.4	---	---	---	---
	32-60	7.0-21	7.4-8.4	---	---	---	---
119OZ: Otero-----	0-8	4.0-13	7.4-8.4	1-5	0	0.0-2.0	0
	8-60	2.0-11	7.4-8.4	5-10	0	0.0-4.0	0
Manter-----	0-9	4.0-13	6.6-7.8	0	0	0	0
	9-23	3.0-11	6.6-7.8	1-5	0	0	0
	23-60	2.0-9.0	7.9-8.4	1-5	0	0.0-2.0	0
119PR: Pratt-----	0-8	1.0-5.0	5.6-7.3	0	---	---	---
	8-24	1.0-7.0	5.6-7.3	0	---	---	---
	24-60	0.0-5.0	6.1-7.3	0-5	---	---	---
119RX: Roxbury-----	0-20	7.0-18	7.4-8.4	1-5	---	---	---
	20-60	7.0-21	7.4-8.4	1-5	---	---	---
Ad: Tivoli-----	0-6	0.0-7.0	6.1-7.8	---	---	---	---
	6-60	0.0-6.0	6.1-8.4	---	---	---	---
An: Roxbury-----	0-20	8.0-19	6.6-8.4	1-5	---	---	---
	20-52	7.0-21	7.4-8.4	1-5	---	---	---
	52-60	7.0-21	7.4-8.4	5-10	---	---	---
ARR: Arkansas River--	0-6	---	---	---	---	---	---
	6-60	---	---	---	---	---	---

CHEMICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
As:							
Lesho-----	0-18	11-23	7.4-8.4	1-5	---	0.0-4.0	---
	18-32	7.0-21	7.4-8.4	1-5	---	0.0-4.0	---
	32-60	0.0-5.0	7.4-9.0	5-10	---	0.0-4.0	---
Lesho, Saline---	0-19	11-22	7.4-9.0	---	---	2.0-8.0	---
	19-35	8.0-21	7.9-9.0	1-5	---	4.0-16.0	---
	35-60	0.0-3.0	7.4-9.0	1-5	---	2.0-8.0	---
Bc:							
Bippus-----	0-17	6.0-23	7.4-8.4	1-5	---	0	---
	17-62	8.0-21	7.9-8.4	5-10	---	0	---
BOP:							
Borrow Pits----	---	---	---	---	---	---	---
Br:							
Fluvents-----	0-6	4.0-18	6.6-8.4	1-5	---	---	---
	6-60	4.0-21	7.4-8.4	1-5	---	---	---
Ca:							
Canadian-----	0-15	2.0-12	5.6-7.3	0	0	0	0
	15-38	4.0-11	6.1-8.4	0	0	0	0
	38-50	2.0-11	6.1-8.4	1-5	0	0	0
Da:							
Dale-----	0-24	6.0-20	6.1-7.8	0	0	0.0-2.0	0
	24-60	10-23	7.4-8.4	1-5	0	2.0-4.0	0
Dh:							
Dale-----	0-24	11-23	6.1-7.8	0	---	0.0-2.0	0
	24-60	10-23	7.4-8.4	1-5	0	2.0-4.0	0
Humbarger-----	0-22	11-21	7.4-8.4	1-5	---	---	---
	22-54	4.0-19	7.9-8.4	5-10	---	---	---
DI:							
Dalhart-----	0-7	4.0-11	6.6-7.8	---	---	---	---
	7-44	7.0-18	7.4-8.4	1-2	---	---	---
	44-60	4.0-14	7.9-8.4	1-5	---	---	---
Lubbock-----	0-8	11-23	6.6-7.8	---	---	---	---
	8-44	14-27	6.6-8.4	1-5	---	---	---
GRP:							
Pits-----	0-60	0.0-5.0	6.6-8.4	0	0	0	0
Ha:							
Harney-----	0-5	9.0-21	5.6-7.8	0	0	0	0
	5-33	20-35	6.1-8.4	1-5	0	0	0
	33-60	15-30	7.4-8.4	5-10	0	0	0
Hb:							
Harney-----	0-6	9.0-18	5.6-7.8	0	0	0	0
	6-30	14-25	6.1-8.4	1-5	0	0	0
	30-66	9.0-21	7.4-8.4	1-5	0	0	0
Hd:							
Holdrege-----	0-11	6.0-14	5.6-7.3	0	0	0	0
	11-33	11-21	6.6-7.8	1-5	0	0	0
	33-48	7.0-18	6.6-7.8	1-5	0	0	0
	48-66	6.0-12	7.4-8.4	1-5	0	0	0
Hg:							
Holdrege-----	0-11	6.0-17	5.6-7.3	0	0	0	0
	11-33	11-21	6.6-7.8	1-5	0	0	0
	33-48	7.0-18	6.6-7.8	1-5	0	0	0
	48-66	6.0-12	7.4-8.4	1-5	0	0	0
Ho:							
Holdrege-----	0-14	6.0-17	5.6-7.3	0	0	0	0
	14-25	11-21	6.6-7.8	0	0	0	0
	25-30	7.0-18	6.6-7.8	0-10	0	0	0
	30-60	6.0-12	7.4-8.4	1-10	0	0	0
Hs:							
Holdrege-----	0-11	6.0-17	5.6-7.3	0	0	0	0
	11-33	11-21	6.6-7.8	1-5	0	0	0
	33-48	7.0-18	6.6-7.8	1-5	0	0	0
	48-66	6.0-12	7.4-8.4	1-5	0	0	0
INL:							
Aquolls-----	0-72	---	---	---	---	---	---
La:							
Las Animas, occasionally flooded-----	0-11	3.0-11	7.4-8.4	1-5	---	0.0-4.0	---
	11-32	3.0-11	7.4-8.4	1-5	---	0.0-2.0	---
	32-60	0.0-3.0	7.4-8.4	5-10	---	---	---

CHEMICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
Lc:							
Las Animas-----	0-11	3.0-11	7.4-8.4	1-5	---	0.0-4.0	---
	11-32	3.0-11	7.4-8.4	1-5	---	0.0-2.0	---
	32-60	0.0-3.0	7.4-8.4	5-10	---	---	---
Lincoln-----	0-6	0.0-4.0	7.4-8.4	---	---	---	---
	6-60	2.0-9.0	7.9-8.4	1-5	---	---	---
Ln:							
Las Animas-----	0-11	3.0-11	7.4-8.4	1-5	---	0.0-4.0	---
	11-32	3.0-11	7.4-8.4	1-5	---	0.0-2.0	---
	32-60	0.0-3.0	7.4-8.4	5-10	---	---	---
Tivoli-----	0-6	0.0-7.0	6.1-7.8	---	---	---	---
	6-60	0.0-6.0	6.1-8.4	---	---	---	---
Ls:							
Leshara-----	0-26	11-22	6.1-8.4	---	0	0.0-2.0	0
	26-45	4.0-16	6.6-8.4	1-5	0	0.0-2.0	0
	45-60	0.0-5.0	6.6-8.4	1-5	0	0.0-2.0	0
Lt:							
Lesho, occasionally flooded-----	0-14	11-22	7.4-8.4	1-5	---	0.0-4.0	---
	14-25	7.0-21	7.4-8.4	1-5	---	0.0-4.0	---
	25-60	0.0-5.0	7.4-9.0	5-10	---	0.0-4.0	---
Lu:							
Lincoln-----	0-6	0.0-4.0	7.4-8.4	---	---	---	---
	6-60	2.0-9.0	7.9-8.4	1-5	---	---	---
M-W:							
Miscellaneous Water-----	---	---	---	---	---	---	---
Ma:							
Penden-----	0-17	11-22	7.4-8.4	15-30	---	0.0-2.0	0
	17-46	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
Mb:							
Penden-----	0-17	11-22	7.4-8.4	15-30	---	0.0-2.0	0
	17-46	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
Mc:							
Penden-----	0-17	11-22	7.4-8.4	15-30	---	0.0-2.0	0
	17-46	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
Md:							
Penden-----	0-14	11-22	7.4-8.4	5-10	---	0.0-2.0	0
	14-32	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
	32-60	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
Mf:							
Penden-----	0-17	11-22	7.4-8.4	15-30	---	0.0-2.0	0
	17-46	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
Campus-----	0-7	11-22	7.4-8.4	15-30	---	---	---
	7-19	7.0-21	7.4-8.4	15-30	---	---	---
	19-22	7.0-21	7.9-8.4	15-30	---	---	---
	22-23	---	---	---	---	---	---
Mh:							
Penden-----	0-17	11-22	7.4-8.4	5-15	---	0.0-2.0	0
	17-46	9.0-21	7.9-8.4	15-30	---	0.0-2.0	0
Tobin-----	0-14	7.0-18	5.6-7.8	---	---	---	---
	14-66	7.0-21	7.4-8.4	1-5	---	---	---
Mn:							
Campus-----	0-7	11-22	7.4-8.4	15-30	---	---	---
	7-19	7.0-21	7.4-8.4	15-30	---	---	---
	19-22	7.0-21	7.9-8.4	15-30	---	---	---
	22-23	---	---	---	---	---	---
Mp:							
Campus-----	0-7	11-22	7.4-8.4	15-30	---	---	---
	7-19	7.0-21	7.4-8.4	15-30	---	---	---
	19-22	7.0-21	7.9-8.4	15-30	---	---	---
	22-23	---	---	---	---	---	---
Canlon-----	0-5	5.0-17	7.4-8.4	1-5	0	0	0
	5-12	3.0-16	7.4-8.4	5-10	0	0	0
	12-13	---	---	---	---	---	---
Of:							
Attica-----	0-14	2.0-8.0	5.6-7.3	---	---	---	---
	14-45	3.0-11	5.6-6.5	---	---	---	---
	45-50	1.0-11	6.1-7.8	---	---	---	---

CHEMICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
Or:							
Attica-----	0-14	2.0-8.0	5.6-7.3	---	---	---	---
	14-45	3.0-11	5.6-6.5	---	---	---	---
	45-50	1.0-11	6.1-7.8	---	---	---	---
Os:							
Attica-----	0-14	2.0-8.0	5.6-7.3	---	---	---	---
	14-45	3.0-11	5.6-6.5	---	---	---	---
	45-50	1.0-11	6.1-7.8	---	---	---	---
Carwile-----	0-11	2.0-12	5.1-7.3	---	---	---	---
	11-28	10-24	5.1-7.3	---	---	---	---
	28-48	14-36	6.1-8.4	1-5	---	---	---
	48-60	8.0-27	6.6-8.4	1-5	---	---	---
Ot:							
Otero-----	0-9	4.0-13	7.4-8.4	1-5	0	0.0-2.0	0
	9-60	2.0-11	7.4-8.4	5-10	0	0.0-4.0	0
Po:							
Canlon-----	0-5	5.0-17	7.4-8.4	1-5	0	0	0
	5-12	3.0-16	7.4-8.4	5-25	0	0	0
	12-13	---	---	---	---	---	---
Pr:							
Pratt-----	0-9	1.0-5.0	5.6-7.3	---	---	---	---
	9-28	1.0-7.0	5.6-7.3	---	---	---	---
	28-54	0.0-5.0	6.1-7.3	1-5	---	---	---
Pt:							
Pratt-----	0-9	1.0-5.0	5.6-7.3	---	---	---	---
	9-28	1.0-7.0	5.6-7.3	---	---	---	---
	28-54	0.0-5.0	6.1-7.3	1-5	---	---	---
Tivoli-----	0-6	2.0-7.0	6.1-7.8	---	---	---	---
	6-60	0.0-6.0	6.1-8.4	1-5	---	---	---
Ra:							
Ness-----	0-40	16-38	6.1-8.4	0	---	---	---
	40-63	8.0-26	7.4-8.4	1-5	---	---	---
Sb:							
Pratt-----	0-12	1.0-5.0	5.6-7.3	---	---	---	---
	12-40	1.0-7.0	5.6-7.3	---	---	---	---
	40-60	0.0-5.0	6.1-7.3	1-5	---	---	---
Humbarger-----	0-22	11-21	7.4-8.4	1-5	---	---	---
	22-30	6.0-21	7.9-8.4	1-5	---	---	---
	30-60	4.0-19	7.9-8.4	1-10	---	---	---
Sp:							
Spearville-----	0-6	15-23	6.6-7.8	---	---	---	---
	6-21	16-35	6.6-8.4	1-5	---	---	---
	21-26	14-35	7.9-8.4	1-5	---	---	---
	26-52	10-24	7.9-8.4	1-5	---	---	---
Sr:							
Spearville-----	0-6	15-23	6.6-7.8	---	---	---	---
	6-21	16-35	6.6-8.4	1-5	---	---	---
	21-26	14-35	7.9-8.4	1-5	---	---	---
	26-52	10-24	7.9-8.4	1-5	---	---	---
Tv:							
Tivoli-----	0-6	0.0-7.0	6.1-7.8	---	---	---	---
	6-60	0.0-6.0	6.1-8.4	---	---	---	---
Ua:							
Uly-----	0-8	10-25	6.1-7.8	0	0	0	0
	8-21	10-25	6.1-8.4	1-5	0	0	0
	21-60	10-23	7.4-8.4	5-10	0	0	0
Ub:							
Uly-----	0-8	10-25	6.1-7.8	0	0	0	0
	8-21	10-25	6.1-8.4	1-5	0	0	0
	21-60	10-23	7.4-8.4	5-10	0	0	0
Uc:							
Uly-----	0-6	10-25	6.1-7.8	0	0	0	0
	6-19	10-25	6.1-8.4	1-5	0	0	0
	19-60	10-23	7.4-8.4	5-10	0	0	0
Coly-----	0-6	10-25	7.4-8.4	5-10	0	0	0
	6-60	7.0-20	7.4-8.4	10-15	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Ford County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
Uh:							
Uly-----	0-9	7.0-18	6.1-7.8	0	0	0	0
	9-17	8.0-18	6.1-8.4	1-5	0	0	0
	17-71	7.0-16	7.4-8.4	1-10	0	0	0
Harney-----	0-6	9.0-18	5.6-7.8	0	0	0	0
	6-30	14-25	6.1-8.4	1-5	0	0	0
	30-66	9.0-21	7.4-8.4	1-5	0	0	0
Un:							
Uly-----	0-9	10-25	6.1-7.8	0	0	0	0
	9-17	10-25	6.1-8.4	1-5	0	0	0
	17-71	10-23	7.4-8.4	5-10	0	0	0
Harney-----	0-6	9.0-18	5.6-7.8	0	0	0	0
	6-30	14-25	6.1-8.4	1-5	0	0	0
	30-66	9.0-21	7.4-8.4	1-10	0	0	0
Up:							
Uly-----	0-9	10-25	6.1-7.8	0	0	0	0
	9-17	10-25	6.1-8.4	1-5	0	0	0
	17-71	10-23	7.4-8.4	5-10	0	0	0
Tobin-----	0-14	7.0-18	5.6-7.8	---	---	---	---
	14-66	7.0-21	7.4-8.4	1-5	---	---	---
W:							
Water-----	---	---	---	---	---	---	---

WATER FEATURES Ford County, Kansas

The Water Features table 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.

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 Water Features 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 Water Features 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, the temporary inundation of an area, is 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.

(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	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
025KB: Kingsdown-----	B		Ft	Ft	Ft				
025PF: Penden-----	B		---	---	---	---	---	---	---
025PG: Penden-----	B		---	---	---	---	---	---	---
025RF: Roxbury-----	B		---	---	---	---	---	---	---
		April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
025SA: Satanta-----	B		---	---	---	---	---	---	---
047BK: Coly-----	B		---	---	---	---	---	---	---
Tobin-----	B		---	---	---	---	---	---	---
		March	---	---	---	---	---	Very brief	Occasional
		April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
		October	---	---	---	---	---	Very brief	Occasional
		November	---	---	---	---	---	Very brief	Occasional
		December	---	---	---	---	---	Very brief	Occasional
047HD: Harney-----	B		---	---	---	---	---	---	---
Uly-----	B		---	---	---	---	---	---	---
047HO: Hord-----	B		---	---	---	---	---	---	---
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
047PA: Platte-----	B		---	---	---	---	---	---	---
		February	1.0-2.0	>6.0	---	---	---	---	None
		March	1.0-2.0	>6.0	---	---	---	---	None
		April	1.0-2.0	>6.0	---	---	---	Brief	Occasional
		May	1.0-2.0	>6.0	---	---	---	Brief	Occasional
		June	1.0-2.0	>6.0	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
047ZE: Lesho-----	C		---	---	---	---	---	---	---
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		June	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
069AN: Bridgeport-----	B		---	---	---	---	---	---	---
		April	---	---	---	---	---	Very brief	Frequent
		May	---	---	---	---	---	Very brief	Frequent
		June	---	---	---	---	---	Very brief	Frequent
		July	---	---	---	---	---	Very brief	Frequent
		August	---	---	---	---	---	Very brief	Frequent
		September	---	---	---	---	---	Very brief	Frequent
069LA:			---	---	---	---	---	---	---

(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	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Las Animas, occasionally flooded-----	C		Ft	Ft	Ft				
		January	2.0-4.0	>6.0	---	---	---	---	None
		February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	Brief	Occasional
		April	2.0-4.0	>6.0	---	---	---	Brief	Occasional
		May	2.0-4.0	>6.0	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		November	2.0-4.0	>6.0	---	---	---	---	None
		December	2.0-4.0	>6.0	---	---	---	---	None
Lesho, occasionally flooded-----	C	March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		June	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
069ME: Penden-----	B		---	---	---	---	---	---	---
069PA: Pratt-----	A		---	---	---	---	---	---	---
069RN: Richfield-----	B		---	---	---	---	---	---	---
069SA: Satanta-----	B		---	---	---	---	---	---	---
069SB: Satanta-----	B		---	---	---	---	---	---	---
069UB: Ulysses-----	B		---	---	---	---	---	---	---
069UC: Ulysses-----	B		---	---	---	---	---	---	---
083HO: Hord-----	B	March	---	---	---	---	---	Very brief	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
083KP: Kim-----	B		---	---	---	---	---	---	---
Penden-----	B		---	---	---	---	---	---	---
083RZ: Bridgeport-----	B		---	---	---	---	---	---	---
097AT: Attica-----	B		---	---	---	---	---	---	---
097CO: Coly-----	B		---	---	---	---	---	---	---
097CT: Coly-----	B		---	---	---	---	---	---	---
Tobin-----	B	March	---	---	---	---	---	Very brief	Frequent
		April	---	---	---	---	---	Very brief	Frequent
		May	---	---	---	---	---	Very brief	Frequent
		June	---	---	---	---	---	Very brief	Frequent
		July	---	---	---	---	---	Very brief	Frequent
		August	---	---	---	---	---	Very brief	Frequent
		September	---	---	---	---	---	Very brief	Frequent
		October	---	---	---	---	---	Very brief	Frequent
		November	---	---	---	---	---	Very brief	Frequent
		December	---	---	---	---	---	Very brief	Frequent
119OZ: Otero-----	B		---	---	---	---	---	---	---
Manter-----	B		---	---	---	---	---	---	---

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Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
119PR: Pratt-----	A		---	---	---	---	---	---	---
119RX: Roxbury-----	B	March	---	---	---	---	---	Very brief	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
Ad: Tivoli-----	A		---	---	---	---	---	---	---
An: Roxbury-----	B	April	---	---	---	---	---	Very brief	Frequent
		May	---	---	---	---	---	Very brief	Frequent
		June	---	---	---	---	---	Very brief	Frequent
		July	---	---	---	---	---	Very brief	Frequent
		August	---	---	---	---	---	Very brief	Frequent
		September	---	---	---	---	---	Very brief	Frequent
ARR: Arkansas River-----	D	January	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		February	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		March	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		April	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		May	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		June	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		July	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		August	0.0-2.0	>6.0	---	---	---	---	None
		September	0.0-2.0	>6.0	---	---	---	---	None
		October	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		November	0.0-2.0	>6.0	---	---	---	Very long	Frequent
		December	0.0-2.0	>6.0	---	---	---	Very long	Frequent
As: Lesho-----	C	March	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		June	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
Lesho, Saline-----	C	March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		June	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
Bc: Bippus-----	B		---	---	---	---	---	---	---
BOP: Borrow Pits-----	---		---	---	---	---	---	---	---
Br: Fluents-----	B	April	---	---	---	---	---	Very brief	Frequent
		May	---	---	---	---	---	Very brief	Frequent
		June	---	---	---	---	---	Very brief	Frequent
		July	---	---	---	---	---	Very brief	Frequent
		August	---	---	---	---	---	Very brief	Frequent
		September	---	---	---	---	---	Very brief	Frequent
Ca: Canadian-----	B	March	---	---	---	---	---	Very brief	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
Da: Dale-----	B	March	---	---	---	---	---	Very brief	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
Dh:									

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Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Dale-----	B	March	---	---	---	---	---	Very brief	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
Humbarger-----	B	April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
Dl: Dalhart-----	B								
Lubbock-----	B								
GRP: Pits-----	A								
Ha: Harney-----	B								
Hb: Harney-----	B								
Hd: Holdrege-----	B								
Hg: Holdrege-----	B								
Ho: Holdrege-----	B								
Hs: Holdrege-----	B								
INL: Aquolls-----	C	March	0.0	>6.0	0.0-0.8	Brief	Occasional	---	None
		April	0.0	>6.0	0.0-0.8	Brief	Occasional	---	None
		May	0.0	>6.0	0.0-0.8	Brief	Occasional	---	None
		June	0.0	>6.0	0.0-0.8	Brief	Occasional	---	None
La: Las Animas, occasionally flooded-----	C	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Lc: Las Animas-----	C	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Lincoln-----	A	January	5.0-6.0	>6.0	---	---	---	---	None
		February	5.0-6.0	>6.0	---	---	---	---	None
		March	5.0-6.0	>6.0	---	---	---	---	None
		April	5.0-6.0	>6.0	---	---	---	Brief	Occasional
		May	5.0-6.0	>6.0	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
		October	---	---	---	---	---	Brief	Occasional
		November	5.0-6.0	>6.0	---	---	---	---	None
		December	5.0-6.0	>6.0	---	---	---	---	None

(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	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Ln: Las Animas-----	C		Ft	Ft	Ft				
		January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Tivoli-----	A		---	---	---	---	---	---	---
Ls: Leshara-----	B								
		March	1.5-3.0	>6.0	---	---	---	Very brief	Occasional
		April	1.5-3.0	>6.0	---	---	---	Very brief	Occasional
		May	1.5-3.0	>6.0	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
Lt: Lesho, occasionally flooded-----	C								
		March	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		June	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
Lu: Lincoln-----	A								
		January	5.0-6.0	>6.0	---	---	---	---	None
		February	5.0-6.0	>6.0	---	---	---	---	None
		March	5.0-6.0	>6.0	---	---	---	---	None
		April	5.0-6.0	>6.0	---	---	---	Brief	Frequent
		May	5.0-6.0	>6.0	---	---	---	Brief	Frequent
		June	---	---	---	---	---	Brief	Frequent
		July	---	---	---	---	---	Brief	Frequent
		August	---	---	---	---	---	Brief	Frequent
		November	5.0-6.0	>6.0	---	---	---	---	None
		December	5.0-6.0	>6.0	---	---	---	---	None
Ma: Penden-----	B								
			---	---	---	---	---	---	---
Mb: Penden-----	B								
			---	---	---	---	---	---	---
Mc: Penden-----	B								
			---	---	---	---	---	---	---
Md: Penden-----	B								
			---	---	---	---	---	---	---
Mf: Penden-----	B								
			---	---	---	---	---	---	---
Campus-----	B								
			---	---	---	---	---	---	---
Mh: Penden-----	B								
			---	---	---	---	---	---	---
Tobin-----	B								
		March	---	---	---	---	---	Very brief	Frequent
		April	---	---	---	---	---	Very brief	Frequent
		May	---	---	---	---	---	Very brief	Frequent
		June	---	---	---	---	---	Very brief	Frequent
		July	---	---	---	---	---	Very brief	Frequent
		August	---	---	---	---	---	Very brief	Frequent
		September	---	---	---	---	---	Very brief	Frequent
Mn: Campus-----	B								
			---	---	---	---	---	---	---
Mp: Campus-----	B								
			---	---	---	---	---	---	---
Canlon-----	D								
			---	---	---	---	---	---	---
Of: Attica-----	B								
			---	---	---	---	---	---	---
Or: Attica-----	B								
			---	---	---	---	---	---	---
Os:									

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Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Attica-----	B		Ft	Ft	Ft				
Carwile-----	D		---	---	---	---	---	---	---
		January	0.0	>6.0	0.0-1.0	Long	---	---	None
		February	0.0	>6.0	0.0-1.0	Long	---	---	None
		March	0.0	>6.0	0.0-1.0	Long	---	---	None
		April	0.0	>6.0	0.0-1.0	Long	---	---	None
		May	---	---	0.0-	---	---	---	None
		June	---	---	0.0-	---	---	---	None
		July	---	---	0.0-	---	---	---	None
		August	---	---	0.0-	---	---	---	None
		September	---	---	0.0-	---	---	---	None
		October	0.0	>6.0	0.0-1.0	Long	---	---	None
		November	0.0	>6.0	0.0-1.0	Long	---	---	None
		December	0.0	>6.0	0.0-1.0	Long	---	---	None
Ot: Otero-----	B		---	---	---	---	---	---	---
Po: Canlon-----	D		---	---	---	---	---	---	---
Pr: Pratt-----	A		---	---	---	---	---	---	---
Pt: Pratt-----	A		---	---	---	---	---	---	---
Tivoli-----	A		---	---	---	---	---	---	---
Ra: Ness-----	D		---	---	---	---	---	---	---
		January	---	---	0.0-	---	---	---	None
		February	---	---	0.0-	---	---	---	None
		March	0.0	>6.0	0.0-1.0	Long	---	---	None
		April	0.0	>6.0	0.0-1.0	Long	---	---	None
		May	0.0	>6.0	0.0-1.0	Long	---	---	None
		June	0.0	>6.0	0.0-1.0	Long	---	---	None
		July	---	---	0.0-	---	---	---	None
		August	---	---	0.0-	---	---	---	None
		September	---	---	0.0-	---	---	---	None
		October	---	---	0.0-	---	---	---	None
		November	---	---	0.0-	---	---	---	None
		December	---	---	0.0-	---	---	---	None
Sb: Pratt-----	A		---	---	---	---	---	---	---
Humbarger-----	B		---	---	---	---	---	---	---
		April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
Sp: Spearville-----	C		---	---	---	---	---	---	---
Sr: Spearville-----	C		---	---	---	---	---	---	---
Tv: Tivoli-----	A		---	---	---	---	---	---	---
Ua: Uly-----	B		---	---	---	---	---	---	---
Ub: Uly-----	B		---	---	---	---	---	---	---
Uc: Uly-----	B		---	---	---	---	---	---	---
Coly-----	B		---	---	---	---	---	---	---
Uh: Uly-----	B		---	---	---	---	---	---	---
Harney-----	B		---	---	---	---	---	---	---
Un: Uly-----	B		---	---	---	---	---	---	---
Harney-----	B		---	---	---	---	---	---	---
Up:			---	---	---	---	---	---	---

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Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Uly-----	B		Ft	Ft	Ft				
Tobin-----	B		---	---	---	---	---	---	---
		March	---	---	---	---	---	Very brief	Occasional
		April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
W: Water-----	---								
			---	---	---	---	---	---	---

The following table 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.

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				
025KB: Kingsdown-----	---	---	---	---	---	Low	Low
025PF: Penden-----	---	---	---	---	Low	Moderate	Low
025PG: Penden-----	---	---	---	---	Low	Moderate	Low
025RF: Roxbury-----	---	---	---	---	None	Low	Low
025SA: Satanta-----	---	---	---	---	Moderate	Low	Low
047BK: Coly-----	---	---	---	---	Moderate	High	Low
047HD: Tobin-----	---	---	---	---	Moderate	Low	Low
047HD: Harney-----	---	---	---	---	Low	High	Low
047HO: Uly-----	---	---	---	---	Moderate	High	Low
047HO: Hord-----	---	---	---	---	Low	High	Low
047PA: Platte-----	---	---	---	---	Low	High	Moderate
047ZE: Lesho-----	---	---	---	---	---	High	Low
069AN: Bridgeport-----	---	---	---	---	Moderate	Low	Low
069LA: Las Animas, occasionally flooded-----	---	---	---	---	Moderate	High	Moderate
069LA: Lesho, occasionally flooded-----	---	---	---	---	Moderate	High	Low
069ME: Penden-----	---	---	---	---	Moderate	Moderate	Low
069PA: Pratt-----	---	---	---	---	Low	Low	Moderate
069RN: Richfield-----	---	---	---	---	Low	Moderate	Low
069SA: Satanta-----	---	---	---	---	Moderate	Low	Low
069SB: Satanta-----	---	---	---	---	Moderate	Low	Low
069UB: Ulysses-----	---	---	---	---	Moderate	Moderate	Low
069UC: Ulysses-----	---	---	---	---	Moderate	Moderate	Low
083HO: Hord-----	---	---	---	---	Moderate	Moderate	Low
083KP: Kim-----	---	---	---	---	Moderate	Moderate	Low
083RZ: Penden-----	---	---	---	---	Moderate	Moderate	Low
083RZ: Bridgeport-----	---	---	---	---	Moderate	Low	Low
097AT: Attica-----	---	---	---	---	Moderate	Low	Low
097CO: Coly-----	---	---	---	---	Low	High	Low
097CT: Coly-----	---	---	---	---	Low	High	Low
097CT: Tobin-----	---	---	---	---	Low	Low	Low
119OZ: Otero-----	---	---	---	---	Low	High	Low
119PR: Manter-----	---	---	---	---	Moderate	Moderate	Low
119PR: Pratt-----	---	---	---	---	Low	Low	Moderate
119RX: Roxbury-----	---	---	---	---	Moderate	Low	Low
Ad: Tivoli-----	---	---	---	---	Low	Low	Low
An: Roxbury-----	---	---	---	---	Moderate	Low	Low
ARR: Arkansas River--	---	---	---	---	---	---	---
As: Lesho-----	---	---	---	---	Moderate	High	Low
As: Lesho, Saline---	---	---	---	---	Moderate	High	Low
Bc: Bippus-----	---	---	---	---	Moderate	Moderate	Low
BOP: Borrow Pits-----	---	---	---	---	---	---	---
Br: Fluents-----	---	---	---	---	Low	Low	Low
Ca: Canadian-----	---	---	---	---	Moderate	Low	Low
Da: Dale-----	---	---	---	---	Moderate	Moderate	Low

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				
Dh:							
Dale-----	---	---	---	---	Moderate	Moderate	Low
Humbarger-----	---	---	---	---	Moderate	Low	Low
Dl:							
Dalhart-----	---	---	---	---	Moderate	Moderate	Low
Lubbock-----	---	---	---	---	Low	High	Low
GRP:							
Pits-----	---	---	---	---	Low	Low	Low
Ha:							
Harney-----	---	---	---	---	Low	Moderate	Low
Hb:							
Harney-----	---	---	---	---	Low	Moderate	Low
Hd:							
Holdrege-----	---	---	---	---	Low	Low	Low
Hg:							
Holdrege-----	---	---	---	---	Moderate	Low	Low
Ho:							
Holdrege-----	---	---	---	---	Moderate	Low	Low
Hs:							
Holdrege-----	---	---	---	---	Low	Low	Low
INL:							
Aquolls-----	---	---	---	---	Low	---	---
La:							
Las Animas, occasionally flooded-----	---	---	---	---	Moderate	High	Low
Lc:							
Las Animas-----	---	---	---	---	Moderate	High	Low
Lincoln-----	---	---	---	---	Low	Low	Low
Ln:							
Las Animas-----	---	---	---	---	Moderate	High	Low
Tivoli-----	---	---	---	---	Low	Low	Moderate
Ls:							
Leshara-----	---	---	---	---	Moderate	High	Low
Lt:							
Lesho, occasionally flooded-----	---	---	---	---	Moderate	High	Low
Lu:							
Lincoln-----	---	---	---	---	Low	Low	Low
M-W:							
Miscellaneous Water-----	---	---	---	---	---	---	---
Ma:							
Penden-----	---	---	---	---	Moderate	Moderate	Low
Mb:							
Penden-----	---	---	---	---	Moderate	Moderate	Low
Mc:							
Penden-----	---	---	---	---	Moderate	Moderate	Low
Md:							
Penden-----	---	---	---	---	Moderate	Moderate	Low
Mf:							
Penden-----	---	---	---	---	Moderate	Moderate	Low
Campus-----	20-40	Bedrock (lithic)	---	Strongly cemented	Moderate	Low	Low
Mh:							
Penden-----	---	---	---	---	Moderate	Moderate	Low
Tobin-----	---	---	---	---	Moderate	Low	Low
Mn:							
Campus-----	20-40	Bedrock (lithic)	---	Strongly cemented	Moderate	Low	Low
Mp:							
Campus-----	20-40	Bedrock (lithic)	---	Strongly cemented	Moderate	Low	Low
Canlon-----	10-20	Bedrock (lithic)	---	Indurated	Moderate	Low	Low
Of:							
Attica-----	---	---	---	---	Moderate	Low	Moderate
Or:							
Attica-----	---	---	---	---	Moderate	Low	Moderate
Os:							
Attica-----	---	---	---	---	Moderate	Low	Moderate
Carwile-----	---	---	---	---	Low	High	Moderate
Ot:							
Otero-----	---	---	---	---	Low	Low	Low
Po:							
Canlon-----	10-20	Bedrock (lithic)	---	Indurated	Moderate	Low	Low
Pr:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Pt:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Tivoli-----	---	---	---	---	Low	Low	Low
Ra:							
Ness-----	---	---	---	---	Low	High	Low
Sb:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Humbarger-----	---	---	---	---	Moderate	Low	Low
Sp:							
Spearville-----	---	---	---	---	Low	High	Low
Sr:							
Spearville-----	---	---	---	---	Low	High	Low

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
Tv:		In	In				
Tivoli-----	---	---	---	---	Low	Low	Low
Ua:							
Uly-----	---	---	---	---	Moderate	Moderate	Low
Ub:							
Uly-----	---	---	---	---	Moderate	Moderate	Low
Uc:							
Uly-----	---	---	---	---	Moderate	Moderate	Low
Coly-----	---	---	---	---	Moderate	Moderate	Low
Uh:							
Uly-----	---	---	---	---	Moderate	Moderate	Low
Harney-----	---	---	---	---	Low	Moderate	Low
Un:							
Uly-----	---	---	---	---	Moderate	Moderate	Low
Harney-----	---	---	---	---	Low	Moderate	Low
Up:							
Uly-----	---	---	---	---	Moderate	High	Low
Tobin-----	---	---	---	---	Moderate	Low	Low
W:							
Water-----	---	---	---	---	---	---	---

WATER MANAGEMENT
Ford County, Kansas

The soils of the survey area are rated in the Water Management table according to limitations that affect their suitability for water management. Soils are rated for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways. Restrictive features that affect each soil for the specified use is also provided in the table.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Moderately limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Limited indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Limitation class terms, such as very limited or limited, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

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 traffic ability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

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 ditch banks 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 very limited 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, which conduct surface water to outlets at a non-erosive 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.

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
025KB: Kingsdown-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Favorable
025PF: Penden-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
025PG: Penden-----	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
025RF: Roxbury-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
025SA: Satanta-----	Limitation: deep to water	Favorable	Favorable	Limitation: too arid
047BK: Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Tobin-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
047HD: Harney-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Uly-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
047HO: Hord-----	Limitation: deep to water	Favorable	Favorable	Favorable
047PA: Platte-----	Limitation: flooding cutbanks cave	Limitation: rooting depth wetness droughty	Limitation: too sandy wetness	Limitation: rooting depth wetness droughty
047ZE: Lesho-----	Limitation: excess salt flooding	Limitation: excess salt flooding wetness	Limitation: wetness	Limitation: excess salt
069AN: Bridgeport-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
069LA: Las Animas, occasionally flooded-----	Limitation: flooding	Limitation: flooding wetness soil blowing	Limitation: wetness soil blowing	Limitation: excess salt
Lesho, occasionally flooded-----	Limitation: excess salt flooding cutbanks cave	Limitation: excess salt flooding wetness	Limitation: too sandy wetness	Limitation: excess salt
069ME: Penden-----	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
069PA: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
069RN: Richfield-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
069SA: Satanta-----	Limitation: deep to water	Favorable	Favorable	Limitation: too arid
069SB: Satanta-----	Limitation: deep to water	Favorable	Favorable	Limitation: too arid
069UB: Ulysses-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
069UC: Ulysses-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
083HO: Hord-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
083KP: Kim-----	Limitation: deep to water	Limitation: slope	Favorable	Limitation: too arid
Penden-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
083RZ: Bridgeport-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
097AT: Attica-----	Limitation: deep to water	Limitation: fast intake soil blowing	Limitation: soil blowing	Favorable
097CO: Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily
097CT: Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Tobin-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
119OZ: Otero-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Manter-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: too sandy soil blowing	Limitation: too arid
119PR: Pratt-----	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
119RX: Roxbury-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Ad: Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
An: Roxbury-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
ARR: Arkansas River--	Limitation: flooding cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness	Limitation: wetness droughty
As: Lesho-----	Limitation: flooding cutbanks cave	Limitation: flooding wetness	Limitation: too sandy wetness	Favorable
Lesho, Saline---	Limitation: excess salt flooding cutbanks cave	Limitation: excess salt flooding wetness	Limitation: too sandy wetness	Limitation: excess salt
Bc: Bippus-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
BOP: Borrow Pits-----	---	---	---	---
Br: Fluvents-----	Limitation: deep to water	Limitation: flooding slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Ca: Canadian-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
Da: Dale-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Dh: Dale-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Humbarger-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
DL: Dalhart-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Limitation: too arid
Lubbock-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
GRP: Pits-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy	Limitation: rooting depth slope droughty
Ha: Harney-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Hb: Harney-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Hd: Holdrege-----	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily
Hg: Holdrege-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Ho: Holdrege-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Hs: Holdrege-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
INL: Aquolls-----	---	---	---	---
La: Las Animas, occasionally flooded-----	Limitation: flooding cutbanks cave	Limitation: wetness soil blowing droughty	Limitation: too sandy wetness soil blowing	Limitation: droughty
Lc: Las Animas-----	Limitation: flooding cutbanks cave	Limitation: wetness soil blowing droughty	Limitation: too sandy wetness soil blowing	Limitation: droughty
Lincoln-----	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
Ln: Las Animas-----	Limitation: flooding cutbanks cave	Limitation: wetness soil blowing droughty	Limitation: too sandy wetness soil blowing	Limitation: droughty
Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
Ls: Leshara-----	Limitation: flooding frost action	Limitation: flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily
Lt: Lesho, occasionally flooded-----	Limitation: flooding cutbanks cave	Limitation: flooding wetness	Limitation: too sandy wetness	Favorable
Lu: Lincoln-----	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
M-W: Miscellaneous Water-----	---	---	---	---
Ma: Penden-----	Limitation: deep to water	Favorable	Favorable	Favorable
Mb: Penden-----	Limitation: deep to water	Favorable	Favorable	Favorable
Mc: Penden-----	Limitation: deep to water	Favorable	Favorable	Favorable
Md: Penden-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Mf: Penden-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Campus-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: depth to rock	Limitation: depth to rock
Mh: Penden-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Tobin-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
Mn: Campus-----	Limitation: deep to water	Limitation: depth to rock	Limitation: depth to rock	Limitation: depth to rock
Mp: Campus-----	Limitation: slope deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Canlon-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Of: Attica-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
Or: Attica-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Favorable
Os: Attica-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
Carwile-----	Limitation: percs slowly	Limitation: percs slowly wetness soil blowing	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily percs slowly
Ot: Otero-----	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: slope soil blowing	Limitation: slope too arid droughty
Po: Canlon-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Pr: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
Pt: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
Ra: Ness-----	Limitation: percs slowly	Limitation: slow intake wetness droughty	Limitation: percs slowly wetness	Limitation: percs slowly wetness droughty
Sb: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
Humbarger-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
Sp: Spearville-----	Limitation: deep to water	Limitation: percs slowly	Limitation: erodes easily	Limitation: erodes easily percs slowly
Sr: Spearville-----	Limitation: deep to water	Limitation: percs slowly	Limitation: erodes easily	Limitation: erodes easily percs slowly
Tv: Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
Ua: Uly-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Ub: Uly-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Uc: Uly-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily
Uh: Uly-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Harney-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Un: Uly-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Harney-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Up: Uly-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Tobin-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
W: Water-----	---	---	---	---

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Deep to water	1.00
025PF: Penden-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
025PG: Penden-----	100	Somewhat limited Seepage Slope	0.70 0.00	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
025RF: Roxbury-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.60	Very limited Deep to water	1.00
025SA: Satanta-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.89	Very limited Deep to water	1.00
047BK: Coly-----	75	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Tobin-----	25	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.55	Very limited Deep to water	1.00
047HD: Harney-----	80	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.00	Very limited Deep to water	1.00
Uly-----	20	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
047HO: Hord-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.58	Very limited Deep to water	1.00
047PA: Platte-----	100	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.97	Very limited Cutbanks cave	1.00
047ZE: Lesho-----	100	Very limited Seepage	1.00	Very limited Seepage Piping Depth to saturated zone Salinity	1.00 0.69 0.43 0.12	Very limited Cutbanks cave Salty water Deep to water	1.00 0.50 0.25
069AN: Bridgeport-----	100	Not rated		Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Very limited Seepage	 1.00	Somewhat limited Seepage Depth to saturated zone	 0.96 0.43	Very limited Cutbanks cave Deep to water Salty water	 1.00 0.25 0.06
Lesho, occasionally flooded-----	40	Very limited Seepage	 1.00	Somewhat limited Seepage Depth to saturated zone Salinity	 0.93 0.43 0.12	Very limited Cutbanks cave Salty water Deep to water	 1.00 0.50 0.25
069ME: Penden-----	100	Somewhat limited Seepage Slope	0.70 0.00	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
069PA: Pratt-----	100	Very limited		Somewhat limited		Very limited	

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
069RN: Richfield-----	100	Seepage	1.00	Seepage	0.57	Deep to water	1.00
069SA: Satanta-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.46	Very limited Deep to water	1.00
069SB: Satanta-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.82	Very limited Deep to water	1.00
069UB: Ulysses-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.82	Very limited Deep to water	1.00
069UC: Ulysses-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.98	Very limited Deep to water	1.00
083HO: Hord-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
083KP: Kim-----	60	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.60	Very limited Deep to water	1.00
Penden-----	40	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
083RZ: Bridgeport-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
097AT: Attica-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.62	Very limited Deep to water	1.00
097CO: Coly-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Deep to water	1.00
097CT: Coly-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Tobin-----	70	Somewhat limited Seepage Slope	0.70 0.03	Very limited Piping	1.00	Very limited Deep to water	1.00
119OZ: Otero-----	30	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.64	Very limited Deep to water	1.00
Manter-----	60	Very limited Seepage	1.00	Somewhat limited Seepage	0.08	Very limited Deep to water	1.00
119PR: Pratt-----	40	Very limited Seepage	1.00	Somewhat limited Seepage	0.39	Very limited Deep to water	1.00
119RX: Roxbury-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Ad: Tivoli-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.60	Very limited Deep to water	1.00
An: Roxbury-----	100	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
ARR: Arkansas River-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.60	Very limited Deep to water	1.00
	100	Not rated		Not rated		Not rated	

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
As: Lesho-----	75	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	1.00 0.43	Very limited Cutbanks cave Deep to water	1.00 0.25
Lesho, Saline-----	25	Very limited Seepage	1.00	Very limited Seepage Piping Depth to saturated zone Salinity	1.00 1.00 0.43 0.12	Very limited Cutbanks cave Salty water Deep to water	1.00 0.50 0.25
Bc: Bippus-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.76	Very limited Deep to water	1.00
BOP: Borrow Pits-----	100	Not rated		Not rated		Not rated	
Br: Fluvents-----	100	Somewhat limited Seepage Slope	0.70 0.03	Somewhat limited Piping	0.88	Very limited Deep to water	1.00
Ca: Canadian-----	100	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.67	Very limited Deep to water	1.00
Da: Dale-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.84	Very limited Deep to water	1.00
Dh: Dale-----	50	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.58	Very limited Deep to water	1.00
Humbarger-----	50	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.80	Very limited Deep to water	1.00
Dl: Dalhart-----	70	Very limited Seepage	1.00	Somewhat limited Piping Seepage	0.91 0.05	Very limited Deep to water	1.00
Lubbock-----	30	Somewhat limited Seepage	0.05	Somewhat limited Hard to pack	0.28	Very limited Deep to water	1.00
GRP: Pits-----	100	Not rated		Not rated		Not rated	
Ha: Harney-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.00	Very limited Deep to water	1.00
Hb: Harney-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.04	Very limited Deep to water	1.00
Hd: Holdrege-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.24	Very limited Deep to water	1.00
Hg: Holdrege-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.22	Very limited Deep to water	1.00
Ho: Holdrege-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.73	Very limited Deep to water	1.00
Hs: Holdrege-----	100	Somewhat limited		Somewhat limited		Very limited	

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
INL: Aguolls-----	100	Seepage	0.70	Piping	0.22	Deep to water	1.00
		Very limited Seepage	1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Somewhat limited Cutbanks cave	0.10
La: Las Animas, occasionally flooded-----	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage Depth to saturated zone	1.00 0.95	Cutbanks cave Deep to water	1.00 0.02
Lc: Las Animas-----	80	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 0.95	Very limited Cutbanks cave Deep to water	1.00 0.02
Lincoln-----	20	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Ln: Las Animas-----	50	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.95 0.95	Very limited Cutbanks cave Deep to water	1.00 0.02
Tivoli-----	50	Very limited Seepage	1.00	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
Ls: Leshara-----	100	Very limited Seepage	1.00	Very limited Piping Seepage Depth to saturated zone	1.00 0.98 0.95	Very limited Cutbanks cave Deep to water	1.00 0.02
Lt: Lesho, occasionally flooded-----	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage Depth to saturated zone	1.00 0.43	Cutbanks cave Deep to water	1.00 0.25
Lu: Lincoln-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Ma: Penden-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
Mb: Penden-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
Mc: Penden-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
Md: Penden-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
Mf: Penden-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
Campus-----	15	Somewhat limited Depth to bedrock	0.99	Somewhat limited Thin layer	0.99	Very limited Deep to water	1.00

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Seepage	0.70	Piping	0.68		
Mh: Penden-----	70	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
Tobin-----	30	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.54	Very limited Deep to water	1.00
Mn: Campus-----	100	Somewhat limited Depth to bedrock Seepage	0.99 0.70	Somewhat limited Thin layer Piping	0.99 0.68	Very limited Deep to water	1.00
Mp: Campus-----	70	Somewhat limited Depth to bedrock Seepage	0.99 0.70	Somewhat limited Thin layer Piping	0.99 0.68	Very limited Deep to water	1.00
Canlon-----	30	Very limited Seepage Depth to bedrock Slope	1.00 1.00 0.04	Very limited Thin layer Piping	1.00 0.92	Very limited Deep to water	1.00
Of: Attica-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.72	Very limited Deep to water	1.00
Or: Attica-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.72	Very limited Deep to water	1.00
Os: Attica-----	60	Very limited Seepage	1.00	Somewhat limited Seepage	0.72	Very limited Deep to water	1.00
Carwile-----	40	Somewhat limited Seepage	0.57	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Ot: Otero-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.67	Very limited Deep to water	1.00
Po: Canlon-----	100	Very limited Seepage Depth to bedrock Slope	1.00 1.00 0.40	Very limited Thin layer Piping	1.00 0.92	Very limited Deep to water	1.00
Pr: Pratt-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Pt: Pratt-----	60	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Tivoli-----	40	Very limited Seepage	1.00	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
Ra: Ness-----	100	Somewhat limited Seepage	0.43	Very limited Depth to saturated zone Hard to pack	1.00 0.46	Somewhat limited Slow refill Cutbanks cave	0.57 0.10
Sb: Pratt-----	70	Very limited Seepage	1.00	Somewhat limited Seepage	0.19	Very limited Deep to water	1.00
Humbarger-----	30	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.78	Very limited Deep to water	1.00
Sp: Spearville-----	100	Somewhat limited Seepage	0.05	Not limited		Very limited Deep to water	1.00

WATER MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sr: Spearville-----	100	Somewhat limited Seepage	0.05	Not limited		Very limited Deep to water	1.00
Tv: Tivoli-----	100	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
Ua: Uly-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Ub: Uly-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Uc: Uly-----	70	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Coly-----	30	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Uh: Uly-----	60	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Harney-----	40	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.04	Very limited Deep to water	1.00
Un: Uly-----	70	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Harney-----	30	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.04	Very limited Deep to water	1.00
Up: Uly-----	75	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Tobin-----	25	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.54	Very limited Deep to water	1.00
W: Water-----	100	Not rated		Not rated		Not rated	

SANITARY FACILITIES
Ford County, Kansas

Sanitary Facilities

The following tables show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

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. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, 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. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

SANITARY FACILITIES
Ford County, Kansas

In an area sanitary landfill, solid 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. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

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. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

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. It should not have excess sodium, salts, or lime and should not be too acid.

SANITARY FACILITIES--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Not limited		Very limited Seepage Slope	1.00 0.33
025PF: Penden-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Slope Seepage	0.67 0.50
025PG: Penden-----	100	Somewhat limited Restricted permeability Slope	0.50 0.37	Very limited Slope Seepage	1.00 0.50
025RF: Roxbury-----	100	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
025SA: Satanta-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
047BK: Coly-----	75	Somewhat limited Restricted permeability Slope	0.50 0.00	Very limited Slope Seepage	1.00 0.50
Tobin-----	25	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
047HD: Harney-----	80	Very limited Restricted permeability	1.00	Somewhat limited Seepage Slope	0.50 0.00
Uly-----	20	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage Slope	0.50 0.00
047HO: Hord-----	100	Somewhat limited Restricted permeability Flooding	0.50 0.40	Somewhat limited Seepage Flooding	0.50 0.40
047PA: Platte-----	100	Very limited Flooding Depth to saturated zone Filtering capacity	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
047ZE: Lesho-----	100	Very limited Flooding Filtering capacity Restricted permeability Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
069AN: Bridgeport-----	100	Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	 1.00 1.00 1.00
Lesho, occasionally flooded-----	40	Very limited Flooding Filtering capacity	 1.00 1.00	Very limited Flooding Seepage	 1.00 1.00

SANITARY FACILITIES--Continued
Ford County, Kansas

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Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
069ME: Penden-----	100	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
		Somewhat limited Restricted permeability	0.50	Very limited Slope	1.00
069PA: Pratt-----	100	Slope	0.37	Seepage	0.50
		Very limited Filtering capacity	1.00	Very limited Seepage	1.00
069RN: Richfield-----	100	Slope		Slope	0.33
		Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
069SA: Satanta-----	100	Slope		Slope	0.00
		Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
069SB: Satanta-----	100	Slope		Slope	0.00
		Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
069UB: Ulysses-----	100	Slope		Slope	0.00
		Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
069UC: Ulysses-----	100	Slope		Slope	0.00
		Somewhat limited Restricted permeability	0.50	Somewhat limited Slope	0.67
083HO: Hord-----	100	Seepage		Seepage	0.50
		Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
083KP: Kim-----	60	Flooding	0.40	Flooding	0.40
		Somewhat limited Restricted permeability	0.50	Somewhat limited Slope	0.67
Penden-----	40	Seepage		Seepage	0.50
		Somewhat limited Restricted permeability	0.50	Somewhat limited Slope	0.67
083RZ: Bridgeport-----	100	Seepage		Seepage	0.50
		Somewhat limited Restricted permeability	0.50	Somewhat limited Slope	0.33
097AT: Attica-----	100			Very limited Seepage	1.00
		Not limited		Slope	0.09
097CO: Coly-----	100			Very limited Slope	1.00
		Somewhat limited Restricted permeability	0.50	Seepage	0.50
097CT: Coly-----	70	Very limited Slope	1.00	Very limited Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Tobin-----	30	Very limited Flooding	1.00	Very limited Flooding	1.00
		Restricted permeability	0.50	Seepage	0.50
119OZ: Otero-----	60			Very limited Seepage	1.00
		Not limited		Slope	0.67
Manter-----	40	Not limited		Very limited	

SANITARY FACILITIES--Continued
Ford County, Kansas

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Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
119PR: Pratt-----	100	Very limited Filtering capacity	1.00	Seepage Slope	1.00 0.67
119RX: Roxbury-----	100	Somewhat limited Restricted permeability Flooding	0.50 0.40	Very limited Seepage Slope	1.00 0.09
Ad: Tivoli-----	100	Very limited Filtering capacity Slope	1.00 0.84	Somewhat limited Seepage	0.50
An: Roxbury-----	100	Very limited Flooding Restricted permeability	1.00 0.50	Flooding	0.40
ARR: Arkansas River-----	100	Not rated		Very limited Seepage	1.00 0.50
As: Lesho-----	75	Very limited Flooding Restricted permeability Depth to saturated zone Filtering capacity	1.00 1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
Lesho, Saline-----	25	Very limited Flooding Filtering capacity Restricted permeability Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
Bc: Bippus-----	100	Somewhat limited Restricted permeability	0.50	Very limited Seepage	0.50
BOP: Borrow Pits-----	100	Not rated		Slope	0.33
Br: Fluvents-----	100	Very limited Flooding Slope Restricted permeability	1.00 1.00 0.50	Not rated	
Ca: Canadian-----	100	Very limited Filtering capacity Flooding	1.00 0.40	Very limited Flooding Seepage	1.00 0.40
Da: Dale-----	100	Somewhat limited Restricted permeability Flooding	0.50 0.40	Somewhat limited Seepage	0.50
Dh: Dale-----	50	Somewhat limited Restricted permeability Flooding	0.50 0.40	Flooding	0.40
Humbarger-----	50	Very limited Flooding Restricted permeability	1.00 0.50	Somewhat limited Seepage	0.50
Dl: Dalhart-----	70	Somewhat limited		Flooding Very limited Seepage	0.40 1.00 0.50
				Very limited	

SANITARY FACILITIES--Continued
Ford County, Kansas

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Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Lubbock-----	30	Restricted permeability	0.50	Seepage	1.00
		Very limited		Slope	0.09
		Restricted	1.00	Not limited	
GRP:					
Pits-----	100	Not rated		Not rated	
Ha:					
Harney-----	100	Very limited	1.00	Somewhat limited	0.50
		Restricted		Seepage	
Hb:					
Harney-----	100	Very limited	1.00	Somewhat limited	0.50
		Restricted		Seepage	
		permeability		Slope	0.00
Hd:					
Holdrege-----	100	Somewhat limited	0.50	Somewhat limited	0.50
		Restricted		Seepage	
		permeability		Slope	0.00
Hg:					
Holdrege-----	100	Somewhat limited	0.50	Somewhat limited	0.50
		Restricted		Seepage	
		permeability			
Ho:					
Holdrege-----	100	Somewhat limited	0.50	Somewhat limited	0.50
		Restricted		Seepage	
		permeability			
Hs:					
Holdrege-----	100	Somewhat limited	0.50	Somewhat limited	0.50
		Restricted		Seepage	
		permeability		Slope	0.00
INL:					
Aquolls-----	100	Very limited	1.00	Very limited	1.00
		Depth to		Depth to	
		saturated zone	1.00	saturated zone	1.00
		Ponding		Ponding	
La:					
Las Animas,	100	Very limited		Very limited	
occasionally					
flooded-----					
		Flooding	1.00	Flooding	1.00
		Depth to	1.00	Seepage	1.00
		saturated zone			
		Filtering	1.00	Depth to	1.00
		capacity		saturated zone	
Lc:					
Las Animas-----	80	Very limited	1.00	Very limited	1.00
		Flooding	1.00	Flooding	1.00
		Depth to		Seepage	
		saturated zone	1.00	Depth to	1.00
		Filtering		saturated zone	
		capacity			
Lincoln-----	20	Very limited	1.00	Very limited	1.00
		Flooding	1.00	Flooding	1.00
		Filtering		Seepage	
		capacity			
		Depth to	0.08		
		saturated zone			
Ln:					
Las Animas-----	50	Very limited	1.00	Very limited	1.00
		Flooding	1.00	Flooding	1.00
		Depth to		Seepage	
		saturated zone	1.00	Depth to	1.00
		Filtering		saturated zone	
		capacity			
Tivoli-----	50	Very limited	1.00	Very limited	1.00
		Filtering		Seepage	
		capacity		Slope	0.91
Ls:					
Leshara-----	100	Very limited	1.00	Very limited	1.00
		Flooding	1.00	Flooding	1.00
		Depth to		Seepage	
		saturated zone			

SANITARY FACILITIES--Continued
Ford County, Kansas

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Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Lt: Lesho, occasionally flooded-----	100	Filtering capacity	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		
		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
Lu: Lincoln-----	100	Restricted permeability	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
		Very limited		Very limited	
M-W: Miscellaneous Water-	100	Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Depth to saturated zone	0.08	Slope	0.00
		Not rated		Not rated	
Ma: Penden-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
Mb: Penden-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
Mc: Penden-----	100	Somewhat limited Restricted permeability	0.50	Slope	0.00
				Somewhat limited Seepage	0.50
Md: Penden-----	100	Somewhat limited Restricted permeability	0.50	Slope	0.00
				Somewhat limited Slope	0.67
Mf: Penden-----	85	Somewhat limited Restricted permeability	0.50	Seepage	0.50
				Somewhat limited Slope	0.67
Campus-----	15	Very limited Depth to bedrock	1.00	Seepage	0.50
				Very limited Depth to hard bedrock	1.00
Mh: Penden-----	70	Somewhat limited Restricted permeability	0.50	Slope	0.67
				Seepage	0.50
Tobin-----	30	Very limited Flooding Restricted permeability	1.00	Very limited Slope	1.00
				Flooding	1.00
Mn: Campus-----	100	Very limited Depth to bedrock	1.00	Seepage	0.50
				Depth to hard bedrock	1.00
Mp: Campus-----	70	Very limited Depth to bedrock	1.00	Seepage	0.50
				Slope	0.00
Canlon-----	30	Very limited Depth to bedrock	1.00	Slope	1.00
				Seepage	0.50
Of: Attica-----	100	Not limited	1.00	Very limited Depth to hard bedrock	1.00
				Slope	1.00

SANITARY FACILITIES--Continued
Ford County, Kansas

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Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Or: Attica-----	100	Not limited		Seepage	1.00
Os: Attica-----	60	Not limited		Very limited Seepage Slope	1.00 0.33
Carwile-----	40	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Seepage Slope Depth to saturated zone Seepage	1.00 0.00 1.00 0.32
Ot: Otero-----	100	Not limited		Very limited Seepage Slope	1.00 0.33
Po: Canlon-----	100	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Pr: Pratt-----	100	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 1.00
Pt: Pratt-----	60	Very limited Filtering capacity Slope	1.00 0.16	Very limited Seepage Slope	1.00 1.00
Tivoli-----	40	Very limited Filtering capacity Slope	1.00 0.16	Very limited Seepage Slope	1.00 1.00
Ra: Ness-----	100	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 0.18
Sb: Pratt-----	70	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.91
Humbarger-----	30	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
Sp: Spearville-----	100	Very limited Restricted permeability	1.00	Not limited	
Sr: Spearville-----	100	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.00
Tv: Tivoli-----	100	Very limited Filtering capacity Slope	1.00 0.84	Very limited Seepage Slope	1.00 1.00
Ua: Uly-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage Slope	0.50 0.00
Ub: Uly-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Slope Seepage	0.67 0.50
Uc: Uly-----	70	Somewhat limited Restricted permeability	0.50	Somewhat limited Slope Seepage	0.67 0.50

SANITARY FACILITIES--Continued
Ford County, Kansas

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Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Coly-----	30	Somewhat limited Restricted permeability	0.50	Somewhat limited Slope	0.67
				Seepage	0.50
Uh: Uly-----	60	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
				Slope	0.00
Harney-----	40	Very limited Restricted permeability	1.00	Somewhat limited Seepage	0.50
				Slope	0.00
Un: Uly-----	70	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
				Slope	0.00
Harney-----	30	Very limited Restricted permeability	1.00	Somewhat limited Seepage	0.50
				Slope	0.00
Up: Uly-----	75	Somewhat limited Restricted permeability	0.50	Somewhat limited Slope	0.67
				Seepage	0.50
Tobin-----	25	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
W: Water-----	100	Not rated		Not rated	

SANITARY FACILITIES--Continued
Ford County, Kansas

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Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50
025PF: Penden-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
025PG: Penden-----	100	Somewhat limited Too clayey Slope	0.50 0.37	Somewhat limited Slope	0.37	Somewhat limited Too clayey Slope	0.50 0.37
025RF: Roxbury-----	100	Very limited Flooding Too clayey	1.00 0.50	Very limited Flooding	1.00	Somewhat limited Too clayey	0.50
025SA: Satanta-----	100	Not limited		Not limited		Not limited	
047BK: Coly-----	75	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00
Tobin-----	25	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	
047HD: Harney-----	80	Not limited		Not limited		Not limited	
Uly-----	20	Not limited		Not limited		Not limited	
047HO: Hord-----	100	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
047PA: Platte-----	100	Very limited Flooding Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 1.00
047ZE: Lesho-----	100	Very limited Flooding Depth to saturated zone Seepage Too clayey	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Too clayey Depth to saturated zone	0.50 0.09
069AN: Bridgeport-----	100	Not rated		Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Very limited		Very limited		Very limited	
		Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Too Sandy Seepage Depth to saturated zone	1.00 0.50 0.09
Lesho, occasionally flooded-----	40	Too Sandy Very limited	1.00	Very limited		Very limited	
		Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.09
		Too Sandy	1.00				
069ME: Penden-----	100	Somewhat limited Too clayey Slope	0.50 0.37	Somewhat limited Slope	0.37	Somewhat limited Too clayey Slope	0.50 0.37
069PA: Pratt-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too Sandy	1.00 0.50
069RN: Richfield-----	100	Not limited		Not limited		Not limited	
069SA: Satanta-----	100	Not limited		Not limited		Not limited	
069SB: Satanta-----	100	Not limited		Not limited		Not limited	
069UB: Ulysses-----	100	Not limited		Not limited		Not limited	
069UC: Ulysses-----	100	Not limited		Not limited		Not limited	

SANITARY FACILITIES--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
083HO: Hord-----	100	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
083KP: Kim-----	60	Not limited		Not limited		Not limited	
Penden-----	40	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
083RZ: Bridgeport-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
097AT: Attica-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50
097CO: Coly-----	100	Not limited		Not limited		Not limited	
097CT: Coly-----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Tobin-----	30	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	
119OZ: Otero-----	60	Not limited		Not limited		Somewhat limited Seepage	0.50
Manter-----	40	Very limited Too Sandy	1.00	Not limited		Somewhat limited Seepage Too Sandy	0.50 0.50
119PR: Pratt-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too Sandy	1.00 0.50
119RX: Roxbury-----	100	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
Ad: Tivoli-----	100	Very limited Seepage Too Sandy Slope	1.00 1.00 0.84	Very limited Seepage Slope	1.00 0.84	Very limited Too Sandy Seepage Slope	1.00 1.00 0.84
An: Roxbury-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	
ARR: Arkansas River-----	100	Not rated		Not rated		Not rated	
As: Lesho-----	75	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.09
Lesho, Saline-----	25	Too Sandy Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.09
Bc: Bippus-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
BOP: Borrow Pits-----	100	Not rated		Not rated		Not rated	
Br: Fluvents-----	100	Very limited Flooding Slope	1.00 1.00	Very limited Flooding Slope	1.00 1.00	Very limited Slope	1.00
Ca: Canadian-----	100	Very limited Seepage Flooding	1.00 0.40	Very limited Seepage Flooding	1.00 0.40	Somewhat limited Seepage	0.50
Da: Dale-----	100	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50

SANITARY FACILITIES--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Dh: Dale-----	50	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
Humbarger-----	50	Very limited Flooding Too clayey	1.00 0.50	Very limited Flooding	1.00	Somewhat limited Too clayey	0.50
Dl: Dalhart-----	70	Not limited		Not limited		Not limited	
Lubbock-----	30	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
GRP: Pits-----	100	Not rated		Not rated		Not rated	
Ha: Harney-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Hb: Harney-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Hd: Holdrege-----	100	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
Hg: Holdrege-----	100	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
Ho: Holdrege-----	100	Not limited		Not limited		Not limited	
Hs: Holdrege-----	100	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
INL: Aguolls-----	100	Very limited Depth to saturated zone Ponding Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
La: Las Animas, occasionally flooded-----	100	Very limited Flooding Depth to saturated zone Seepage Too Sandy	 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	 1.00 1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	 1.00 1.00 0.68
Lc: Las Animas-----	80	Very limited Flooding Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.68
Lincoln-----	20	Too Sandy Very limited Flooding Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too Sandy Seepage	1.00 1.00
Ln: Las Animas-----	50	Very limited Flooding Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.68
Tivoli-----	50	Too Sandy Very limited Seepage Too Sandy	1.00 1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
Ls: Leshara-----	100	Very limited		Very limited		Somewhat limited	

SANITARY FACILITIES--Continued
Ford County, Kansas

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Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Lt: Lesho, occasionally flooded-----	100	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Seepage	1.00				
		Too clayey	0.50				
Lu: Lincoln-----	100	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too Sandy	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.09
M-W: Miscellaneous Water-	100	Too Sandy	1.00				
		Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
Ma: Penden-----	100	Seepage	1.00	Seepage	1.00		
		Too clayey	0.50	Not rated		Not rated	
		Not rated		Not rated		Not rated	
		Somewhat limited		Somewhat limited		Somewhat limited	
Mb: Penden-----	100	Too clayey	0.50	Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50	Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Somewhat limited	
Mc: Penden-----	100	Too clayey	0.50	Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50	Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Somewhat limited	
Md: Penden-----	100	Too clayey	0.50	Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50	Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Somewhat limited	
Mf: Penden-----	85	Too clayey	0.50	Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50	Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Somewhat limited	
Campus-----	15	Too clayey	0.50	Not limited		Too clayey	0.50
		Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00			Too clayey	0.50
Mh: Penden-----	70	Too clayey	0.50				
		Slope	0.00	Somewhat limited Slope	0.00	Somewhat limited Too clayey Slope	0.50 0.00
		Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too clayey	0.50
Mn: Campus-----	100	Too clayey	0.50				
		Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00			Too clayey	0.50
Mp: Campus-----	70	Too clayey	0.50				
		Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Slope	0.00	Too clayey Slope	0.50 0.00
Canlon-----	30	Too clayey	0.50				
		Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope Too clayey	1.00 0.50
Of: Attica-----	100	Seepage	1.00				
		Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.50
		Very limited		Very limited		Somewhat limited	
Or: Attica-----	100	Seepage	1.00	Seepage	1.00	Seepage	0.50
		Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.50
		Very limited		Very limited		Somewhat limited	
Os: Attica-----	60	Seepage	1.00	Seepage	1.00	Seepage	0.50
		Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.50
		Very limited		Very limited		Very limited	
Carwile-----	40	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Ot: Otero-----	100	Very limited		Not limited		Somewhat limited	

SANITARY FACILITIES--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Po: Canlon-----	100	Too Sandy	1.00			Seepage Too Sandy	0.50 0.50
Pr: Pratt-----	100	Very limited Depth to bedrock Slope Seepage	1.00 1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Pt: Pratt-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too Sandy	1.00 0.50
Tivoli-----	60	Very limited Seepage Too Sandy Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Very limited Seepage Too Sandy Slope	1.00 0.50 0.16
Ra: Ness-----	100	Very limited Seepage Too Sandy Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Very limited Too Sandy Seepage Slope	1.00 1.00 0.16
Sb: Pratt-----	100	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
Humbarger-----	70	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Seepage	1.00
Sp: Spearville-----	30	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	
Sr: Spearville-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Tv: Tivoli-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Ua: Uly-----	100	Very limited Seepage Too Sandy Slope	1.00 1.00 0.84	Very limited Seepage Slope	1.00 0.84	Very limited Too Sandy Seepage Slope	1.00 1.00 0.84
Ub: Uly-----	100	Not limited		Not limited		Not limited	
Uc: Uly-----	100	Not limited		Not limited		Not limited	
Uh: Uly-----	70	Not limited		Not limited		Not limited	
Uly-----	30	Not limited		Not limited		Not limited	
Harney-----	60	Not limited		Not limited		Not limited	
Un: Uly-----	40	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Up: Uly-----	70	Not limited		Not limited		Not limited	
Tobin-----	30	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
W: Water-----	75	Not limited		Not limited		Not limited	
	25	Very limited Flooding Too clayey	1.00 0.50	Very limited Flooding	1.00	Somewhat limited Too clayey	0.50
	100	Not rated		Not rated		Not rated	

AGRICULTURAL WASTE MANAGEMENT Ford County, Kansas

The nature of the soil is also important in the application of organic wastes and wastewater to land as fertilizers and irrigation; it is also important when the soil is used as a medium for treatment and disposal of these wastes. Favorable soil properties are required to prevent environmental damage.

The use of organic wastes and wastewater as production resources will result in energy conservation, prevent the waste of these important resources, and prevent problems associated with their disposal. Where disposal is the goal, and a maximum amount is disposed in a minimum area to hold costs to a minimum, risk of environmental damage is the principal constraint. Where the reuse goal is pursued, and a minimum amount is applied to a maximum area to obtain the greatest benefit, environmental damage is unlikely.

Interpretations developed for waste management may include ratings for (1) manure and food processing wastes; (2) municipal sewage sludge; (3) irrigation use of wastewater; or (4) treatment of wastewater by the slow rate process, overland flow process, or rapid infiltration process. If available, these should be located in this subsection.

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

The Ag-Waste tables show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, phosphorus, heavy metals, and salts are not added in excessive amounts.

The ratings in the tables are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are generally favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

AGRICULTURAL WASTE MANAGEMENT
Ford County, Kansas

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding.

The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

See the National Soil Handbook, September 1992, Part 620, for criteria used in rating soils for sanitary facilities and waste management.

AGRICULTURAL WASTE MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
025KB: Kingsdown-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Too steep for surface application Filtering capacity	0.08 0.00
025PF: Penden-----	100	Not limited		Not limited		Somewhat limited Too steep for surface application	0.31
025PG: Penden-----	100	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Too steep for surface application Too steep for sprinkler application	1.00 0.59
025RF: Roxbury-----	100	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
025SA: Satanta-----	100	Not limited		Not limited		Not limited	
047BK: Coly-----	75	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Too steep for surface application Too steep for sprinkler application	1.00 0.10
Tobin-----	25	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
047HD: Harney-----	80	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
Uly-----	20	Not limited		Not limited		Not limited	
047HO: Hord-----	100	Not limited		Somewhat limited Flooding	0.40	Not limited	
047PA: Platte-----	100	Very limited Filtering capacity Depth to saturated zone Droughty Flooding	1.00 1.00 0.93 0.60	Very limited Filtering capacity Flooding Depth to saturated zone Droughty	1.00 1.00 1.00 0.93	Very limited Filtering capacity Depth to saturated zone Droughty Flooding	1.00 1.00 0.93 0.60
047ZE: Lesho-----	100	Very limited Filtering capacity Flooding Salinity Depth to saturated zone Sodium content	1.00 0.60 0.50 0.43 0.32	Very limited Filtering capacity Flooding Depth to saturated zone Sodium content Restricted permeability	1.00 1.00 0.43 0.32 0.22	Very limited Filtering capacity Flooding Depth to saturated zone Sodium content Restricted permeability	1.00 0.60 0.43 0.32 0.22
069AN: Bridgeport-----	100	Not rated		Not rated		Not rated	
069LA: Las Animas, occasionally flooded-----	50	Somewhat limited Flooding Depth to saturated zone Salinity Filtering capacity	 0.60 0.43 0.06 0.00	Very limited Flooding Depth to saturated zone Salinity Filtering capacity	 1.00 0.43 0.13 0.00	Somewhat limited Flooding Depth to saturated zone Salinity Filtering capacity	 0.60 0.43 0.13 0.00
Lesho, occasionally flooded-----	40	Very limited		Very limited		Very limited	

AGRICULTURAL WASTE MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
069ME: Penden-----	100	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Salinity	0.50	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Depth to saturated zone	0.43	Restricted permeability	0.22	Restricted permeability	0.22
		Restricted permeability	0.30	Salinity	0.13	Salinity	0.13
069PA: Pratt-----	100	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Too steep for surface application	1.00
						Too steep for sprinkler application	0.59
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
069RN: Richfield-----	100	Leaching limitation	0.45	Droughty	0.00	Too steep for surface application	0.08
		Droughty	0.00			Droughty	0.00
		Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
069SA: Satanta-----	100	Not limited		Not limited		Not limited	
069SB: Satanta-----	100	Not limited		Not limited		Not limited	
069UB: Ulysses-----	100	Not limited		Not limited		Not limited	
069UC: Ulysses-----	100	Not limited		Not limited		Somewhat limited Too steep for surface application	0.31
083HO: Hord-----	100	Not limited		Somewhat limited Flooding	0.40	Not limited	
083KP: Kim-----	60	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.31
						Restricted permeability	0.22
		Not limited		Not limited		Somewhat limited Too steep for surface application	0.31
083RZ: Bridgeport-----	100	Not limited		Not limited		Somewhat limited Too steep for surface application	0.08
097AT: Attica-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00
097CO: Coly-----	100	Not limited		Not limited		Too steep for surface application	0.00
						Somewhat limited Too steep for surface application	0.91
						Too steep for sprinkler application	0.02
097CT: Coly-----	70	Very limited		Very limited		Very limited	

AGRICULTURAL WASTE MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Tobin----- 119OZ: Otero-----	30	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
						Too steep for sprinkler application	1.00
	60	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Too steep for surface application	0.31
Manter----- 119PR: Pratt-----	40	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Filtering capacity	0.00
						Somewhat limited Too steep for surface application	0.31
	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Filtering capacity	0.00
		Leaching limitation Droughty	0.45 0.01	Droughty	0.01	Too steep for surface application	0.01 0.00
119RX: Roxbury----- Ad: Tivoli-----	100	Not limited		Somewhat limited Flooding	0.40	Not limited	
	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Slope	0.84	Slope	0.84	Too steep for surface application	1.00
		Droughty	0.62	Droughty	0.62	Too steep for sprinkler application	0.89
An: Roxbury----- ARR: Arkansas River-----	100	Leaching limitation	0.45			Droughty	0.62
		Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Not rated		Not rated		Not rated	
	100	Not rated		Not rated		Not rated	
As: Lesho----- Lesho, Saline-----	75	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
		Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
		Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
Bc: Bippus-----	25	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Salinity	0.50	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Depth to saturated zone	0.43	Restricted permeability	0.22	Restricted permeability	0.22
Bc: Bippus-----	100	Restricted permeability	0.30	Salinity	0.13	Salinity	0.13
		Not limited		Not limited		Somewhat limited	

AGRICULTURAL WASTE MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BOP: Borrow Pits-----	100	Not rated		Not rated		Too steep for surface application Not rated	0.08
Br: Fluvents-----	100	Very limited Flooding Slope	1.00 1.00	Very limited Flooding Slope	1.00 1.00	Very limited Flooding Too steep for surface application Too steep for sprinkler application	1.00 1.00 1.00
Ca: Canadian-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Flooding Filtering capacity	0.40 0.00	Somewhat limited Filtering capacity	0.00
Da: Dale-----	100	Not limited		Somewhat limited Flooding	0.40	Not limited	
Dh: Dale-----	50	Not limited		Somewhat limited Flooding	0.40	Not limited	
Humbarger-----	50	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
Dl: Dalhart-----	70	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity Too steep for surface application	0.00 0.00
Lubbock-----	30	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
GRP: Pits-----	100	Not rated		Not rated		Not rated	
Ha: Harney-----	100	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
Hb: Harney-----	100	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
Hd: Holdrege-----	100	Not limited		Not limited		Not limited	
Hg: Holdrege-----	100	Not limited		Not limited		Not limited	
Ho: Holdrege-----	100	Not limited		Not limited		Not limited	
Hs: Holdrege-----	100	Not limited		Not limited		Not limited	
INL: Aguolls-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Low adsorption	1.00	Low adsorption	1.00	Low adsorption	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
La: Las Animas, occasionally flooded-----	100	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to saturated zone	0.95	Flooding	1.00	Depth to saturated zone	0.95

AGRICULTURAL WASTE MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Lc: Las Animas-----	80	Flooding	0.60	Depth to saturated zone	0.95	Flooding	0.60
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Depth to saturated zone	0.95	Flooding	1.00	Depth to saturated zone	0.95
		Flooding	0.60	Depth to saturated zone	0.95	Flooding	0.60
Lincoln-----	20	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Leaching limitation	0.45				
Ln: Las Animas-----	50	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Depth to saturated zone	0.95	Flooding	1.00	Depth to saturated zone	0.95
		Flooding	0.60	Depth to saturated zone	0.95	Flooding	0.60
Tivoli-----	50	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Droughty	0.62	Droughty	0.62	Too steep for surface application	0.66
		Leaching limitation	0.45			Droughty	0.62
						Too steep for sprinkler application	0.00
Ls: Leshara-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Depth to saturated zone	0.95	Flooding	1.00	Depth to saturated zone	0.95
		Flooding	0.60	Depth to saturated zone	0.95	Flooding	0.60
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
Lt: Lesho, occasionally flooded-----	100	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
Lu: Lincoln-----	100	Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Leaching limitation	0.45				
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Ma: Penden-----	100	Not limited		Not limited		Not limited	
Mb: Penden-----	100	Not limited		Not limited		Not limited	
Mc: Penden-----	100	Not limited		Not limited		Not limited	
Md: Penden-----	100	Not limited		Not limited		Somewhat limited Too steep for surface application	0.31

AGRICULTURAL WASTE MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mf: Penden-----	85	Not limited		Not limited		Somewhat limited Too steep for surface application	0.31
Campus-----	15	Somewhat limited Depth to bedrock Droughty	0.97 0.66	Somewhat limited Depth to bedrock Droughty	0.97 0.66	Somewhat limited Depth to bedrock Droughty Too steep for surface application	0.97 0.66 0.31
Mh: Penden-----	70	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Too steep for surface application Too steep for sprinkler application	1.00 0.10
Tobin-----	30	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Mn: Campus-----	100	Somewhat limited Depth to bedrock Droughty	0.97 0.66	Somewhat limited Depth to bedrock Droughty	0.97 0.66	Somewhat limited Depth to bedrock Droughty	0.97 0.66
Mp: Campus-----	70	Somewhat limited Depth to bedrock	0.97	Somewhat limited Depth to bedrock	0.97	Very limited Too steep for surface application	1.00
		Droughty Slope	0.66 0.00	Droughty Slope	0.66 0.00	Depth to bedrock Droughty Too steep for sprinkler application	0.97 0.66 0.10
Canlon-----	30	Very limited Depth to bedrock Droughty Slope	1.00 1.00 1.00	Very limited Droughty Depth to bedrock Slope	1.00 1.00 1.00	Very limited Droughty Depth to bedrock Too steep for surface application	1.00 1.00 1.00
		Runoff limitation	0.40			Too steep for sprinkler application	1.00
Of: Attica-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00
Or: Attica-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Too steep for surface application Filtering capacity	0.08 0.00
Os: Attica-----	60	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00
Carwile-----	40	Very limited Depth to saturated zone Restricted permeability Runoff limitation Too acid	1.00 1.00 1.00 0.40 0.02	Very limited Depth to saturated zone Restricted permeability Too acid	1.00 1.00 1.00 0.07	Very limited Depth to saturated zone Restricted permeability Too acid	1.00 1.00 1.00 0.07
Ot: Otero-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Too steep for surface application Filtering capacity	0.08 0.00
Po: Canlon-----	100	Very limited Depth to bedrock Droughty	1.00 1.00	Very limited Droughty Depth to bedrock	1.00 1.00	Very limited Droughty Depth to bedrock	1.00 1.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pr: Pratt-----	100	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40			Too steep for sprinkler application	1.00
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45	Droughty	0.03	Too steep for surface application	0.91
Pt: Pratt-----	60	Droughty	0.03			Droughty	0.03
						Too steep for sprinkler application	0.02
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45	Slope	0.16	Too steep for surface application	1.00
Tivoli-----	40	Slope	0.16	Droughty	0.03	Too steep for surface application	0.39
		Droughty	0.03			Too steep for sprinkler application	0.03
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Droughty	0.03
		Droughty	0.50	Droughty	0.50	Very limited Filtering capacity	1.00
Ra: Ness-----	100	Leaching limitation	0.45			Too steep for surface application	1.00
		Slope	0.16	Slope	0.16	Droughty	0.50
						Too steep for sprinkler application	0.39
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Sb: Pratt-----	70	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff limitation	0.40				
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45			Too steep for surface application	0.66
Humbarger-----	30	Too steep for sprinkler application				Too steep for sprinkler application	0.00
						Too steep for sprinkler application	0.00
		Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
Sp: Spearville-----	100	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Sr: Spearville-----	100	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Tv: Tivoli-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Slope	0.84	Slope	0.84	Too steep for surface application	1.00
		Droughty	0.62	Droughty	0.62	Too steep for surface application	0.89
		Leaching limitation	0.45			Too steep for sprinkler application	0.89
						Droughty	0.62

AGRICULTURAL WASTE MANAGEMENT--Continued
Ford County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ua: Uly-----	100	Not limited		Not limited		Not limited	
Ub: Uly-----	100	Not limited		Not limited		Somewhat limited Too steep for surface application	0.31
Uc: Uly-----	70	Not limited		Not limited		Somewhat limited Too steep for surface application	0.31
Coly-----	30	Not limited		Not limited		Somewhat limited Too steep for surface application	0.31
Uh: Uly-----	60	Not limited		Not limited		Not limited	
Harney-----	40	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
Un: Uly-----	70	Not limited		Not limited		Not limited	
Harney-----	30	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
Up: Uly-----	75	Not limited		Not limited		Somewhat limited Too steep for surface application	0.31
Tobin-----	25	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
W: Water-----	100	Not rated		Not rated		Not rated	

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Ford County, Kansas: KS057

						SPISP II Ratings		
MUSYM/SEQ#	COMPONENT/TEXTURE/MU%	HYD	KFACT	SURFACE DEPTH	% OM	Leaching	Solution	Adsorbed
						(SLP)	Runoff (SSRP)	Runoff (SARP)
025KB 1	KINGSDOWN FSL 100%	B	0.20	10"	1.5%	H	I	I
025PF 1	PENDEN CL 100%	B	0.28	16"	1.5%	I	I	I
025PG 1	PENDEN CL 100%	B	0.28	16"	1.5%	I	I	I
025RF 1	ROXBURY SIL 100%	B	0.32	21"	2.5%	L	I	I
025SA 1	SATANTA L 100%	B	0.28	11"	1.5%	I	I	I
047BK 1	COLY SIL 75%	B	0.43	6"	1.5%	H	I	I
047BK 2	TOBIN SIL 25%	B	0.32	15"	2.5%	I	I	I
047HD 1	HARNEY SICL 80%	B	0.32	6"	2.0%	I	I	I
047HD 2	ULY SIL 20%	B	0.32	8"	2.0%	I	I	I
047HO 1	HORD SIL 100%	B	0.32	12"	3.0%	I	I	I
047PA 1	PLATTE L 100%	B	0.28	9"	2.0%	H (w)	I	I
047ZE 1	LESHO CL 100%	C	0.28	15"	1.5%	H (w)	H	H
069AN 1	BRIDGEPORT SIL 100%	B	0.28	12"	2.0%	I	I	I
069LA 1	LAS ANIMAS SL 50%	C	0.24	11"	0.8%	H (w)	H	H
069LA 2	LESHO CL 40%	C	0.28	14"	1.5%	H (w)	H	H
069ME 1	PENDEN CL 100%	B	0.28	15"	0.8%	I	I	I
069PA 1	PRATT LFS 100%	A	0.17	11"	0.8%	H	L	L
069RN 1	RICHFIELD SIL 100%	B	0.32	6"	1.5%	H	I	I
069SA 1	SATANTA L 100%	B	0.28	10"	1.5%	I	I	I
069SB 1	SATANTA L 100%	B	0.28	10"	1.5%	I	I	I
069UB 1	ULYSSES SIL 100%	B	0.32	7"	2.0%	I	I	I
069UC 1	ULYSSES SIL 100%	B	0.32	6"	1.5%	H	I	I
083HO 1	HORD SICL 100%	B	0.32	12"	2.0%	I	I	I
083KP 1	KIM SICL 60%	B	0.32	4"	0.8%	H	I	I
083KP 2	PENDEN SICL 40%	B	0.32	16"	0.8%	I	I	I
083RZ 1	BRIDGEPORT SICL 100%	B	0.32	22"	2.0%	I	I	I
097AT 1	ATTICA LFS 100%	B	0.17	10"	0.8%	H	I	I
097CO 1	COLY SIL 100%	B	0.43	5"	1.5%	H	I	I

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Ford County, Kansas: KS057

097CT 1	COLY SIL 70%	B	0.43	5"	1.5% H	I	H (s)
097CT 2	TOBIN SIL 30%	B	0.32	25"	2.5% L	I	I
119OZ 1	OTERO FSL 60%	B	0.24	8"	0.8% H	I	I
119OZ 2	MANTER FSL 40%	B	0.20	9"	0.8% H	I	I
119PR 1	PRATT LFS 100%	A	0.17	8"	0.8% H	L	L
119RX 1	ROXBURY SIL 100%	B	0.32	20"	2.0% I	I	I
Ad 1	TIVOLI FS 100%	A	0.15	6"	0.8% H	L	I (s)
An 1	ROXBURY SIL 100%	B	0.32	20"	3.0% L	I	I
ARR 1	ARKANSAS RIVER S 100%	D	0.00	6"	0.1% H (w)	H	L
As 1	LESHO CL 75%	C	0.28	18"	2.0% H (w)	H	H
As 2	LESHO, SALINE CL 25%	C	0.28	19"	1.5% H (w)	H	H
Bc 1	BIPPUS CL 100%	B	0.28	17"	2.0% I	I	I
BOP 1	BORROW PITS 100%		0.00	0"	0.0% ?	?	?
Br 1	FLUVENTS SIL 100%	B	0.32	6"	1.3% H	I	H (s)
Ca 1	CANADIAN FSL 100%	B	0.20	15"	1.5% I	I	I
Da 1	DALE SIL 100%	B	0.32	24"	2.0% L	I	I
Dh 1	DALE CL 50%	B	0.32	24"	2.0% L	I	I
Dh 2	HUMBARGER CL 50%	B	0.28	22"	2.0% I	I	I
Dl 1	DALHART FSL 70%	B	0.24	7"	0.8% H	I	I
Dl 2	LUBBOCK CL 30%	B	0.28	8"	2.0% I	I	I
GRP 1	PITS GR-S 100%	A	0.10	60"	0.3% H	L	I (s)
Ha 1	HARNEY SIL 100%	B	0.32	5"	2.0% I	I	I
Hb 1	HARNEY SIL 100%	B	0.32	6"	2.5% I	I	I
Hd 1	HOLDREGE VFSL 100%	B	0.32	11"	2.0% I	I	I
Hg 1	HOLDREGE L 100%	B	0.28	11"	2.0% I	I	I
Ho 1	HOLDREGE SIL 100%	B	0.32	14"	2.0% I	I	I
Hs 1	HOLDREGE SIL 100%	B	0.32	11"	2.0% I	I	I
INL 1	AQUOLLS VAR 100%	C	0.00	72"	0.0% ?	H	?
La 1	LAS ANIMAS SL 100%	C	0.24	11"	0.8% H (w)	H	H
Lc 1	LAS ANIMAS SL 80%	C	0.24	11"	0.8% H (w)	H	H

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Ford County, Kansas: KS057

Lc 2	LINCOLN S 20%	A	0.15	6"	0.8% H	L	L
Ln 1	LAS ANIMAS SL 50%	C	0.24	11"	0.8% H (w)	H	H
Ln 2	TIVOLI FS 50%	A	0.15	6"	0.8% H	L	L
Ls 1	LESHARA CL 100%	B	0.28	26"	1.5% H (w)	I	I
Lt 1	LESHO CL 100%	C	0.28	14"	1.5% H (w)	H	H
Lu 1	LINCOLN S 100%	A	0.15	6"	0.8% H	L	L
M-W 1	MISCELLANEOUS WATER 100%		0.00	0"	0.0% ?	?	?
Ma 1	PENDEN CL 100%	B	0.28	17"	1.5% I	I	I
Mb 1	PENDEN CL 100%	B	0.28	17"	1.5% I	I	I
Mc 1	PENDEN CL 100%	B	0.28	17"	1.5% I	I	I
Md 1	PENDEN CL 100%	B	0.28	14"	1.5% I	I	I
Mf 1	PENDEN CL 85%	B	0.28	17"	1.5% I	I	I
Mf 2	CAMPUS CL 15%	B	0.28	7"	2.0% I	I	I
Mh 1	PENDEN CL 70%	B	0.28	17"	1.5% I	I	I
Mh 2	TOBIN SIL 30%	B	0.32	14"	2.0% I	I	I
Mn 1	CAMPUS CL 100%	B	0.28	7"	2.0% I	I	I
Mp 1	CAMPUS CL 70%	B	0.28	7"	2.0% I	I	I
Mp 2	CANLON L 30%	D	0.32	5"	0.8% V	H	H (s)
Of 1	ATTICA FSL 100%	B	0.24	14"	0.8% H	I	I
Or 1	ATTICA FSL 100%	B	0.24	14"	0.8% H	I	I
Os 1	ATTICA FSL 60%	B	0.24	14"	0.8% H	I	I
Os 2	CARWILE FSL 40%	D	0.24	11"	1.5% H (w)	H	H
Ot 1	OTERO FSL 100%	B	0.24	9"	0.8% H	I	I
Po 1	CANLON L 100%	D	0.32	5"	2.0% V	H	H (s)
Pr 1	PRATT LFS 100%	A	0.17	9"	0.8% H	L	L
Pt 1	PRATT LFS 60%	A	0.17	9"	0.8% H	L	L
Pt 2	TIVOLI LFS 40%	A	0.17	6"	0.8% H	L	L
Ra 1	NESS C 100%	D	0.28	40"	2.0% H (w)	H	H
Sb 1	PRATT LFS 70%	A	0.17	12"	0.8% H	L	L
Sb 2	HUMBARGER SICL 30%	B	0.32	22"	1.5% I	I	I

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Ford County, Kansas: KS057

Sp 1	SPEARVILLE SICL 100%	C	0.32	6"	2.0% L	H	H
Sr 1	SPEARVILLE SICL 100%	C	0.32	6"	2.0% L	H	H
Tv 1	TIVOLI FS 100%	A	0.15	6"	0.8% H	L	I (s)
Ua 1	ULY SIL 100%	B	0.32	8"	1.5% I	I	I
Ub 1	ULY SIL 100%	B	0.32	8"	1.5% I	I	I
Uc 1	ULY SIL 70%	B	0.32	6"	1.5% H	I	I
Uc 2	COLY SIL 30%	B	0.43	6"	0.8% H	I	I
Uh 1	ULY SIL 60%	B	0.32	9"	2.0% I	I	I
Uh 2	HARNEY SIL 40%	B	0.32	6"	2.0% I	I	I
Un 1	ULY SIL 70%	B	0.32	9"	2.0% I	I	I
Un 2	HARNEY SIL 30%	B	0.32	6"	2.0% I	I	I
Up 1	ULY SIL 75%	B	0.32	9"	2.0% I	I	I
Up 2	TOBIN SIL 25%	B	0.32	14"	2.0% I	I	I
W 1	WATER 100%		0.00	0"	0.0% ?	?	?

(.\REPORTS\SOILS.TXT generated on 12/12/01 at 12:11:15)

H -- High
I -- Intermediate
L -- Low
V -- Very Low

Conditions that affect ratings:

- m -- There are macropores in the surface horizon deeper than 24"
- w -- The high water table comes within 24" of the surface during the growing season
- s -- The field slope is greater than 15%

SPISP II S-Ratings:

- SLP -- Soil Leaching Potential
- SSRP -- Soil Solution Runoff Potential
- SARP -- Soil Adsorbed Runoff Potential

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and "Keys to Soil Taxonomy" (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Ford County, Kansas

PAGE 2 of 6

All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
025KB: KINGSDOWN FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	KINGSDOWN	No	paleoterrace, sand sheet	---	---	---	---
	NESS	Yes	playa	2B2,3	YES	NO	YES
025PF: PENDEN CLAY LOAM, 2 TO 7 PERCENT SLOPES, ERODED	PENDEN	No	plain	---	---	---	---
025PG: PENDEN CLAY LOAM, 7 TO 15 PERCENT SLOPES	PENDEN	No	break	---	---	---	---
025RF: ROXBURY SILT LOAM, OCCASIONALLY FLOODED	ROXBURY	No	flood plain	---	---	---	---
025SA: SATANTA LOAM, 0 TO 2 PERCENT SLOPES	SATANTA	No	sand sheet	---	---	---	---
	NESS	Yes	playa	2B2,3	YES	NO	YES
047BK: COLY-TOBIN SILT LOAMS, 0 TO 15 PERCENT SLOPES	COLY	No	hillslope	---	---	---	---
	TOBIN	No	flood plain	---	---	---	---
047HD: HARNEY-ULY COMPLEX, 1 TO 3 PERCENT SLOPES	HARNEY	No	plain	---	---	---	---
	ULY	No	paleoterrace	---	---	---	---
047HO: HORD SILT LOAM, RARELY FLOODED	HORD	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL 1	Yes	drainageway	4,2B3	YES	YES	NO
	UNNAMED HYDRIC SOIL 2	Yes	depression	3,2B3,2A	YES	NO	YES
	Unamed wet soils	Yes	depression	2A,3,2B3	YES	NO	YES
047PA: PLATTE SOILS, OCCASIONALLY FLOODED	PLATTE	No	flood plain	---	---	---	---
047ZE: LESHO CLAY LOAM, SALINE, OCCASIONALLY FLOODED	LESHO	No	flood plain	---	---	---	---
069AN: BRIDGEPORT SILT LOAM, CHanneled	BRIDGEPORT	No	flood plain	---	---	---	---
069LA: LAS ANIMAS-LESHO COMPLEX, ALKALI, OCCASIONALLY FLOODED	LAS ANIMAS	No	flood plain	---	---	---	---
	LESHO SLICKSPOTS	No	flood plain	---	---	---	---
	SWEETWATER	Yes	stream terrace flood plain	2B3	YES	NO	NO
069ME: PENDEN CLAY LOAM, 6 TO 15 PERCENT SLOPES	PENDEN	No	plain	---	---	---	---
069PA: PRATT LOAMY FINE SAND, 1 TO 6 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	UNNAMED HYDRIC SOILS	Yes	depression	2B3	YES	NO	NO
069RN: RICHFIELD SILT LOAM, 1 TO 3 PERCENT SLOPES	RICHFIELD	No	plain	---	---	---	---
	NESS	Yes	playa	2B3,3	YES	NO	YES
069SA: SATANTA LOAM, 0 TO 1 PERCENT SLOPES	SATANTA	No	paleoterrace, sand sheet	---	---	---	---
	NESS	Yes	playa	2B3,3	YES	NO	YES
069SB: SATANTA LOAM, 1 TO 3 PERCENT SLOPES	SATANTA	No	paleoterrace, sand sheet	---	---	---	---
069UB: ULYSSES SILT LOAM, 1 TO 3 PERCENT SLOPES	ULYSSES	No	ridge	---	---	---	---
069UC: ULYSSES SILT LOAM, 3 TO 6 PERCENT SLOPES	ULYSSES	No	plain	---	---	---	---
083HO: HORD SILTY CLAY LOAM, RARELY FLOODED	HORD	No	flood plain	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
083KP: KIM-PENDEN SILTY CLAY LOAMS, 3 TO 6 PERCENT SLOPES, ERODED	KIM	No	alluvial fan, fan remnant	---	---	---	---
	PENDEN	No	plain	---	---	---	---
083RZ: BRIDGEPORT SILTY CLAY LOAM, 2 TO 5 PERCENT SLOPES	BRIDGEPORT	No	flood plain	---	---	---	---
097AT: ATTICA LOAMY FINE SAND, 1 TO 4 PERCENT SLOPES	ATTICA	No	dune, paleoterrace	---	---	---	---
	CARWILE Unnamed wet soils	Yes Yes	depression depression	2A 3,2B3,2A,4	YES YES	NO YES	NO YES
097CO: COLY SILT LOAM, 4 TO 9 PERCENT SLOPES	COLY	No	hillslope	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2B3	YES	NO	NO
097CT: COLY-TOBIN SILT LOAMS, 0 TO 20 PERCENT SLOPES	COLY	No	hillslope	---	---	---	---
	TOBIN Unnamed wet soils	No Yes	flood plain drainageway	---	---	---	---
				2A,2B3,4	YES	YES	NO
119OZ: OTERO-MANTER FINE SANDY LOAMS, 3 TO 6 PERCENT SLOPES	OTERO	No	fan remnant	---	---	---	---
	MANTER	No	paleoterrace, sand sheet	---	---	---	---
119PR: PRATT SOILS, 0 TO 5 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	UNNAMED HYDRIC SOILS	Yes	depression	2B3	YES	NO	NO
119RX: ROXBURY SILT LOAM, RARELY FLOODED	ROXBURY	No	flood plain	---	---	---	---
Ad: TIVOLI FINE SAND, 4 TO 20 PERCENT SLOPES, ERODED	TIVOLI	No	dune, paleoterrace	---	---	---	---
An: ROXBURY SILT LOAM, CHANNELED	ROXBURY	No	flood plain	---	---	---	---
ARR: ARKANSAS RIVER	ARKANSAS RIVER	Unranked	---	---	---	---	---
As: LESHO-LESHO, SALINE CLAY LOAMS, OCCASIONALLY FLOODED	LESHO	No	flood plain	---	---	---	---
	LESHO, SALINE UNNAMED HYDRIC SOILS	No Yes	flood plain depression	---	---	---	---
				2B3	YES	NO	NO
Bc: BIPPUS CLAY LOAM, 2 TO 5 PERCENT SLOPES	BIPPUS	No	alluvial fan	---	---	---	---
BOP: BORROW PITS	BORROW PITS	Unranked	---	---	---	---	---
Br: FLUVENTS	FLUVENTS	No	flood-plain step	---	---	---	---
Ca: CANADIAN FINE SANDY LOAM, RARELY FLOODED	CANADIAN	No	flood plain	---	---	---	---
Da: DALE SILT LOAM, RARELY FLOODED	DALE	No	flood plain	---	---	---	---
Dh: DALE AND HUMBARGER CLAY LOAMS, RARELY FLOODED	DALE	No	flood plain	---	---	---	---
	HUMBARGER	No	flood plain	---	---	---	---
Dl: DALHART-LUBBOCK COMPLEX, 0 TO 5 PERCENT SLOPES	DALHART	No	paleoterrace, sand sheet	---	---	---	---
	LUBBOCK NESS	No Yes	paleoterrace playa	---	---	---	---
				2B3,3	YES	NO	YES

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
GRP: GRAVEL PIT	PITS	Unranked	---	---	---	---	---
Ha: HARNEY SILT LOAM, 0 TO 1 PERCENT SLOPES	HARNEY	No	plain	---	---	---	---
Hb: HARNEY SILT LOAM, 1 TO 3 PERCENT SLOPES	NESS	Yes	playa	2B3,3	YES	NO	YES
Hd: HOLDREGE FINE SANDY LOAM, 1 TO 3 PERCENT SLOPES	HARNEY	No	plain	---	---	---	---
Hg: HOLDREGE LOAM, 0 TO 1 PERCENT SLOPES	HOLDREGE	No	plain	---	---	---	---
Ho: HOLDREGE SILT LOAM, 0 TO 1 PERCENT SLOPES	HOLDREGE	No	plain	---	---	---	---
Hs: HOLDREGE SILT LOAM, 1 TO 3 PERCENT SLOPES	NESS	Yes	playa	2B3,3	YES	NO	YES
INL: AQUOLLS	HOLDREGE	No	plain	---	---	---	---
La: LAS ANIMAS SANDY LOAM, OCCASIONALLY FLOODED	NESS	Yes	terrace	3	NO	NO	YES
Lc: LAS ANIMAS-LINCOLN COMPLEX, OCCASIONALLY FLOODED	HOLDREGE	No	plain	---	---	---	---
Ln: LAS ANIMAS-TIVOLI COMPLEX, 0 TO 6 PERCENT SLOPES, OCCASIONALLY FLOODED	AQUOLLS	Yes	depression, terrace	3,2B3	YES	NO	YES
Ls: LESHARA CLAY LOAM, OCCASIONALLY FLOODED	LAS ANIMAS	No	flood plain	---	---	---	---
Lt: LESHO CLAY LOAM, OCCASIONALLY FLOODED	UNNAMED HYDRIC SOILS	Yes	depression	2B3	YES	NO	NO
Lu: LINCOLN SOILS, FREQUENTLY FLOODED	LAS ANIMAS	No	flood plain	---	---	---	---
M-W: MISCELLANEOUS WATER	LINCOLN UNNAMED HYDRIC SOILS	No Yes	flood plain depression	---	---	---	---
Ma: PENDEN CLAY LOAM, 0 TO 1 PERCENT SLOPES	LAS ANIMAS	No	flood plain	---	---	---	---
Mb: PENDEN CLAY LOAM, 1 TO 3 PERCENT SLOPES	TIVOLI	No	dune, paleoterrace	---	---	---	---
Mc: PENDEN CLAY LOAM, 1 TO 3 PERCENT SLOPES, ERODED	LESHARA	No	flood plain	---	---	---	---
Md: PENDEN CLAY LOAM, 3 TO 6 PERCENT SLOPES	UNNAMED HYDRIC SOILS	Yes	depression	2B3	YES	NO	NO
Mf: PENDEN AND CAMPUS SOILS, 3 TO 6 PERCENT SLOPES, ERODED	LESHO	No	flood plain	---	---	---	---
	SWEETWATER	Yes	flood plain	2B3	YES	NO	NO
	LINCOLN	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOILS	Yes	depression	2B3	YES	NO	NO
	MISCELLANEOUS WATER	---	---	---	---	---	---
	PENDEN	No	plain	---	---	---	---
	PENDEN	No	plain	---	---	---	---
	PENDEN	No	plain	---	---	---	---
	PENDEN	No	plain	---	---	---	---
	PENDEN	No	plain	---	---	---	---
	PENDEN	No	plain	---	---	---	---
	CAMPUS	No	plain	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Mh: PENDEN-TOBIN COMPLEX, 0 TO 15 PERCENT SLOPES	PENDEN	No	plain	---	---	---	---
	TOBIN	No	flood plain	---	---	---	---
Mn: CAMPUS CLAY LOAM, 0 TO 3 PERCENT SLOPES	CAMPUS	No	plain	---	---	---	---
Mp: CAMPUS-CANLON COMPLEX, 3 TO 40 PERCENT SLOPES	CAMPUS	No	plain	---	---	---	---
	CANLON	No	break	---	---	---	---
Of: ATTICA FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES	ATTICA	No	dune, paleoterrace	---	---	---	---
Or: ATTICA FINE SANDY LOAM, 2 TO 8 PERCENT SLOPES	ATTICA	No	dune, paleoterrace	---	---	---	---
Os: ATTICA-CARWILE COMPLEX, 0 TO 4 PERCENT SLOPES	ATTICA	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A,3	YES	NO	YES
Ot: OTERO FINE SANDY LOAM, 2 TO 6 PERCENT SLOPES	OTERO	No	fan remnant	---	---	---	---
Po: CANLON SOILS, 15 TO 40 PERCENT SLOPES	CANLON	No	break	---	---	---	---
Pr: PRATT LOAMY FINE SAND, 3 TO 10 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	UNNAMED HYDRIC SOILS	Yes	depression	2B3	YES	NO	NO
Pt: PRATT-TIVOLI LOAMY FINE SANDS, 4 TO 15 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	TIVOLI	No	dune, paleoterrace	---	---	---	---
Ra: NESS CLAY	NESS	Yes	playa	2B3,3	YES	NO	YES
Sb: PRATT-HUMBARGER COMPLEX, 0 TO 15 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	HUMBARGER	No	flood plain	---	---	---	---
Sp: SPEARVILLE SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES	SPEARVILLE	No	plain	---	---	---	---
	NESS	Yes	playa	2B3,3	YES	NO	YES
Sr: SPEARVILLE COMPLEX, 1 TO 3 PERCENT SLOPES, ERODED	SPEARVILLE	No	plain	---	---	---	---
Tv: TIVOLI FINE SAND, 5 TO 20 PERCENT SLOPES	TIVOLI	No	dune, paleoterrace	---	---	---	---
Ua: ULY SILT LOAM, 1 TO 3 PERCENT SLOPES	ULY	No	plain	---	---	---	---
Ub: ULY SILT LOAM, 3 TO 6 PERCENT SLOPES	ULY	No	plain	---	---	---	---
Uc: ULY-COLY SILT LOAMS, 3 TO 6 PERCENT SLOPES, ERODED	ULY	No	plain	---	---	---	---
	COLY	No	hillslope	---	---	---	---
Uh: ULY-HARNEY SILT LOAMS, 1 TO 3 PERCENT SLOPES	ULY	No	plain	---	---	---	---
	HARNEY	No	plain	---	---	---	---
Un: ULY-HARNEY COMPLEX, 1 TO 3 PERCENT SLOPES, ERODED	ULY	No	plain	---	---	---	---
	HARNEY	No	plain	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Up: ULY-TOBIN COMPLEX, 0 TO 6 PERCENT SLOPES	ULY	No	plain	---	---	---	---
W: WATER	TOBIN	No	flood plain	---	---	---	---
	WATER	Unranked	---	---	---	---	---

FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II.
Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:
 - a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or
 - b. poorly drained or very poorly drained and have either:
 - (1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils
 - (2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or
 - (3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or
3. Soils that are frequently ponded for long duration or very long duration during the growing season, or
4. Soils that are frequently flooded for long duration or very long duration during the growing season.