

<b>Table of Contents</b> <b>Section II – Soil and Site Information</b>
---

	<b>Issue Date</b>	<b>Date of Last Review</b>	<b>Responsible Staff</b>
<i>Use and Explanation of Soil Interpretations</i>			
<i>Explanation of Key Phrases Used in Soil Interpretations</i>			
<b>Soils Legends</b>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<i>* Acreage and Proportionate Extent of the Soils</i>			
<b>Soil Descriptions - Nontechnical</b>	<b>1/02</b>	<b>1/93</b>	<b>SOI</b>
<i>Use and Explanation of Nontechnical Descriptions</i>			
<i>*Nontechnical Soils Description Report</i>			
<b>Soil Descriptions - Technical</b>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<i>*Map Unit Description Report</i>			
<b>Cropland Interpretations - Technical</b>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<i>*Prime Farmland Report</i>			
<i>* Kansas Soil Rating for Plant Growth Index</i>			
<i>*Soil Properties for Conservation Planning</i>			
<b>Rangeland, Grazed Forestland, Native Pastureland Interpretations</b>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<i>*Rangeland Productivity Report</i>			
<i>*Range Site Descriptions</i>			
<b>Forestland Interpretations</b>	<b>1/93</b>	<b>1/93</b>	<b>SOI</b>
<i>Use and Explanation of Forestland Interpretations</i>			
<i>*Woodland Management and Productivity</i>			
<b>Nonagricultural Interpretations</b>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<i>*Building Site Development Report</i>			
<i>*Construction Materials Report</i>			
<b>Recreation Interpretations</b>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<i>*Recreational Interpretations</i>			
<b>Wildlife Interpretations</b>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<i>*Wildlife Interpretations Report</i>			
<b>Pastureland and Hayland Interpretations</b>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<i>*Yields Per Acre of Pasture and Hayland</i>			

	<b>Issue Date</b>	<b>Date of Last Review</b>	<b>Responsible Staff</b>
<b>Mined Land Interpretations</b> <i>Use and Explanation of Mined Land Interpretations</i>	<b>1/93</b>	<b>1/93</b>	<b>SOI</b>
<b>Windbreak Interpretations</b> <i>*Conservation Tree and Shrub Management Report</i>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<b>Engineering Interpretations</b> <i>*Engineering Index Properties</i> <i>*Physical Properties of the Soils</i> <i>*Chemical Properties of the Soils</i> <i>*Water Features</i> <i>*Soil Features</i> <i>*Water Management Report</i>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<b>Waste Disposal Interpretations</b> <i>*Sanitary Facilities Report</i> <i>*Agricultural Waste Management Report</i>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<b>Water Quantity and Quality Interpretations</b> <i>Use and Explanation of Water Quantity and Quality Interpretations</i> <i>*Appendix A – Soils Potential For Surface Loss and Leaching</i> <i>*Appendix B – Pesticide Selected Properties Database</i> <i>*Appendix C – Herbicide Selected Properties Database</i> <i>*Soil-Pesticide Interaction Screening Procedure Worksheet (Blank)</i> <i>*WIN-PST SPISP II Soil Sensitivity to Pesticide Loss Rating Report</i>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<b>Hydric Soil Interpretations</b> <i>Use and Explanation of Hydric Soil Interpretations</i> <i>*Hydric Soils List</i>	<b>1/02</b>	<b>1/02</b>	<b>SOI</b>
<b>HEL Interpretations</b> <i>Use and Explanation of Highly Erodible Land Interpretations</i> <i>*Highly Erodible Lands Report</i> <i>*LS and Supporting Data for 1990 Frozen HEL List</i> <i>*CRP 20 Soil Supporting Data for 1990 Frozen HEL List</i>	<b>7/95</b>	<b>1/00</b>	<b>SOI</b>

*\*County specific computer generated reports.*

## ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Stafford County, Kansas: Published

Map symbol	Soil name	Acres	Percent
009DT	Dillwyn-Tivoli Complex, 0 To 15 Percent Slopes-----	2,209	0.4
009TV	Tivoli Fine Sand, 15 To 30 Percent Slopes-----	787	0.2
047CS	Carwile-Drummond Complex, 0 To 1 Percent Slopes-----	104	*
151KP	Kanza-Plevna Complex, Frequently Flooded-----	30	*
159DP	Dillwyn-Plevna Loamy Fine Sands, 0 To 1 Percent Slopes-----	128	*
159DT	Dillwyn-Tivoli Complex, 0 To 20 Percent Slopes-----	42	*
159DU	Drummond Complex, 0 To 1 Percent Slopes-----	2,033	0.4
159PE	Plevna Fine Sandy Loam, Frequently Flooded-----	8	*
990	Abbyville Loam, 0 To 1 Percent Slopes-----	565	0.1
991	Abbyville-Kisiwa Complex, 0 To 2 Percent Slopes, Flooded-----	313	*
1005	Albion Sandy Loam, 1 To 3 Percent Slopes-----	675	0.1
1011	Albion-Shellabarger Sandy Loams, 1 To 3 Percent Slopes-----	51	*
1324	Carway And Carbika Soils, 0 To 1 Percent Slopes-----	1,308	0.3
1359	Clark-Ost Loams, 3 To 7 Percent Slopes-----	159	*
1553	Darlow-Elmer Complex, 0 To 2 Percent Slopes-----	519	0.1
1555	Dillhut-Plev Complex, 0 To 2 Percent Slopes-----	1,036	0.2
1556	Dillhut-Solvay Complex, 0 To 3 Percent Slopes-----	126	*
1725	Farnum And Funmar Loams, 0 To 1 Percent Slopes-----	12,637	2.5
1726	Funmar And Farnum Loams, 1 To 3 Percent Slopes-----	17	*
1985	Hayes Fine Sandy Loam, 1 To 5 Percent Slopes-----	1,405	0.3
1986	Hayes-Solvay Loamy Fine Sands, 0 To 5 Percent Slopes-----	10,884	2.1
1987	Hayes-Turon Complex, 0 To 5 Percent Slopes-----	31,659	6.2
1988	Hayes Loamy Fine Sand, 5 To 10 Percent Slopes-----	467	*
2381	Kanza-Ninescah Sandy Loams, 0 To 2 Percent Slopes, Commonly Flooded-----	755	0.1
2556	Langdon Fine Sand, 0 To 15 Percent Slopes-----	6,032	1.2
2958	Ninnescah Fine Sandy Loam, 0 To 1 Percent Slopes, Occasionally Flooded---	1,548	0.3
3053	Ost Loam, 1 To 3 Percent Slopes-----	2,024	0.4
3180	Pratt Fine Sand, 5 To 10 Percent Slopes-----	48	*
3181	Pratt-Turon Fine Sands, 1 To 5 Percent Slopes-----	313	*
3511	Saltcreek And Naron Fine Sandy Loams, 0 To 1 Percent Slopes-----	15	*
3512	Saltcreek And Naron Fine Sandy Loams, 1 To 3 Percent Slopes-----	25,978	5.1
3520	Saxman Loamy Sand, 0 To 1 Percent Slopes-----	170	*
3540	Solvay Loamy Fine Sand, 0 To 2 Percent Slopes-----	14,744	2.9
3639	Taver Loam, 0 To 1 Percent Slopes-----	14,020	2.8
3640	Tivin Fine Sand, 10 To 30 Percent Slopes-----	2,644	0.5
3641	Tivin-Dillhut Fine Sands, 0 To 15 Percent Slopes-----	314	*
3644	Turon-Carway Complex, 0 To 5 Percent Slopes-----	172	*
3926	Water-----	123	*
An	Albion Sandy Loam, 1 To 4 Percent Slopes-----	564	0.1
At	Attica Fine Sandy Loam, 1 To 4 Percent Slopes-----	4,654	0.9
Ba	Blanket Silt Loam, 0 To 1 Percent Slopes-----	5,429	1.1
BTG	Big Salt Marsh, Little Salt Marsh, And Associated Low Areas-----	3,529	0.7
Ca	Carwile Fine Sandy Loam, 0 To 1 Percent Slopes-----	46,271	9.1
Cw	Carwile Complex, 0 To 1 Percent Slopes-----	3,770	0.7
Cx	Clark Loam, 1 To 3 Percent Slopes-----	613	0.1
Dp	Dillwyn-Plevna Complex, 0 To 5 Percent Slopes-----	8,298	1.6
Dt	Dillwyn-Tivoli Loamy Fine Sands, 0 To 15 Percent Slopes-----	11,423	2.2
Fa	Farnum Fine Sandy Loam, 0 To 1 Percent Slopes-----	11,255	2.2
Fr	Farnum Loam, 0 To 2 Percent Slopes-----	12,855	2.5
GRP	Gravel Pits-----	34	*
INT	Aquolls-----	1,079	0.2
Kg	Kingman Silty Clay Loam, Occasionally Flooded-----	3,008	0.6
M-W	Miscellaneous Water-----	23	*
Na	Naron Fine Sandy Loam, 0 To 3 Percent Slopes-----	33,765	6.6
NAA	Naron Fine Sandy Loam, 0 To 1 Percent Slopes-----	409	*
NBB	Naron Fine Sandy Loam, 1 To 3 Percent Slopes-----	28,376	5.6
Nu	Natrustolls, Occasionally Flooded-----	14,447	2.8
Pa	Plevna Soils, Frequently Flooded-----	7,770	1.5
Pc	Plevna Soils, Channeled-----	2,429	0.5
Ph	Pratt Loamy Fine Sand, 5 To 10 Percent Slopes-----	16,996	3.3
Po	Pratt Loamy Fine Sand, 1 To 5 Percent Slopes-----	60,940	12.0
Pr	Pratt-Carwile Complex, 0 To 8 Percent Slopes-----	48,194	9.5
Pt	Pratt-Tivoli Loamy Fine Sands, 5 To 15 Percent Slopes-----	24,145	4.7
Ta	Tabler Loam, 0 To 1 Percent Slopes-----	6,157	1.2
TAA	Tabler Clay Loam, 0 To 1 Percent Slopes-----	1,098	0.2
Tv	Tivoli Fine Sand, 5 To 20 Percent Slopes-----	7,138	1.4
W	Water-----	232	*
Wa	Waldeck Fine Sandy Loam, Occasionally Flooded-----	4,242	0.8
Za	Zenda-Natrustolls Complex, Occasionally Flooded-----	3,645	0.7
ZSS	Zenda-Drummond Complex, Occasionally Flooded-----	52	*
	Total-----	508,902	100.0

\* Less than 0.1 percent.

Nontechnical Soil Descriptions  
Stafford 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.

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009DT Dillwyn-Tivoli Complex, 0 To 15 Percent Slopes

Dillwyn soil makes up 60 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping interdune on paleoterrace on river valley, dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is somewhat poorly 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 top of the seasonal high water table is at 24 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 4w.

Tivoli soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 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. This soil is in the Sands (pe21-28) range site. It is in the nonirrigated land capability classification 7e.

009TV Tivoli Fine Sand, 15 To 30 Percent Slopes

Tivoli soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a moderately sloping to 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 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. This soil is in the Choppy Sands (pe21-28) range site. It is in the nonirrigated land capability classification 7e.

047CS Carwile-Drummond Complex, 0 To 1 Percent Slopes

Carwile soil makes up 90 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level depression on paleoterrace on river valley. The runoff class is negligible. The parent material consists of alluvium. This soil is somewhat poorly 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 frequent ponded. The top of the seasonal high water table is at 0 inches. This soil is in the Sandy (pe21-28) range site. It is in the nonirrigated land capability classification 2w.

Drummond soil makes up 10 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of clayey and/or loamy alluvium. This soil is moderately well drained. The slowest permeability is very slow. It has a low 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 48 inches. This soil contains a slightly saline horizon. This soil is in the Saline Lowland (pe21-28) range site. It is in the nonirrigated land capability classification 6s.

151KP Kanza-Plevna Complex, Frequently Flooded

Kanza soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 alluvium. This soil is poorly drained. The slowest permeability is rapid. It has a low 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 18 inches. It is in the nonirrigated land capability classification 5w.

Plevna soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand 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 alluvium. This soil is poorly drained. The slowest permeability is moderately 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 12 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

159DP Dillwyn-Plevna Loamy Fine Sands, 0 To 1 Percent Slopes

Dillwyn soil makes up 60 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level interdune on paleoterrace on river valley, dune on paleoterrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat poorly 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 top of the seasonal high water table is at 24 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 4w.

Nontechnical Soil Descriptions--Continued  
Stafford County, Kansas

Plevna soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand 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 alluvium. This soil is poorly drained. The slowest permeability is moderately rapid. It has a low 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 12 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

159DT Dillwyn-Tivoli Complex, 0 To 20 Percent Slopes

Dillwyn soil makes up 60 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping interdune on paleoterrace on river valley, dune on paleoterrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat poorly 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 top of the seasonal high water table is at 24 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 4w.

Tivoli soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 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. This soil is in the Choppy Sands (pe21-28) range site. It is in the nonirrigated land capability classification 7e.

159DU Drummond Complex, 0 To 1 Percent Slopes

Drummond soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of clayey and/or loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is very slow. It has a low 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 48 inches. This soil contains a slightly saline horizon. This soil is in the Saline Lowland (pe21-28) range site. It is in the nonirrigated land capability classification 6s.

159PE Plevna Fine Sandy Loam, Frequently Flooded

Plevna soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand 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 alluvium. This soil is poorly drained. The slowest permeability is moderately 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 12 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

990 Abbyville Loam, 0 To 1 Percent Slopes

Abbyville soil makes up 95 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level terrace 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 slow. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not 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, it has a horizon that is strongly sodic. This soil is in the Saline Subirrigated (pe21-28) range site. This soil is in the irrigated land capability class 3s. It is in the nonirrigated land capability classification 3s.

991 Abbyville-Kisiwa Complex, 0 To 2 Percent Slopes, Flooded

Abbyville, rarely flooded, soil makes up 45 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace 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 slow. It has a moderate available water capacity and a moderate shrink swell potential. This soil is rarely 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, it has a horizon that is strongly sodic. This soil is in the Saline Subirrigated (pe21-28) range site. This soil is in the irrigated land capability class 3s. It is in the nonirrigated land capability classification 3s.

Kisiwa, occasionally flooded, soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley, terrace on river valley. The runoff class is very low. The parent material consists of loamy alluvium over clayey alluvium. This soil is poorly drained. The slowest permeability is very slow. It has a moderate available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is occasional ponded. The top of the seasonal high water table is at 0 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a slightly saline horizon, it has a horizon that is strongly sodic. This soil is in the Saline Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 4s.

Nontechnical Soil Descriptions--Continued  
Stafford County, Kansas

1005 Albion Sandy Loam, 1 To 3 Percent Slopes

Albion soil makes up 75 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on river valley. The runoff class is low. 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 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 3e.

1011 Albion-Shellabarger Sandy Loams, 1 To 3 Percent Slopes

Albion soil makes up 70 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on river valley. The runoff class is low. 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 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 3e.

Shellabarger soil makes up 30 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on river valley. 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 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 (pe21-28) range site. It is in the nonirrigated land capability classification 2e.

1324 Carway And Carbika Soils, 0 To 1 Percent Slopes

Carway soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level interdune on depression on paleoterrace on river valley. The runoff class is very low. The parent material consists of loamy eolian deposits over alluvium. This soil is somewhat poorly drained. The slowest permeability is very slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is frequent 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 Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 2w.

Carbika soil makes up 30 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level interdune on depression on paleoterrace on river valley. The runoff class is very low. The parent material consists of loamy eolian deposits over alluvium. This soil is poorly drained. The slowest permeability is very slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is frequent 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 Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 2w.

1359 Clark-Ost Loams, 3 To 7 Percent Slopes

Clark soil makes up 70 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a moderately sloping paleoterrace on river valley. The runoff class is medium. 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 45 percent calcium carbonate. This soil is in the Limy Upland (pe21-28) range site. It is in the nonirrigated land capability classification 2c.

Ost soil makes up 30 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a moderately sloping paleoterrace on river valley. The runoff class is medium. The parent material consists of loamy alluvium. 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 34 percent calcium carbonate. This soil is in the Loamy Upland (pe24-32) range site. It is in the nonirrigated land capability classification 2c.

1553 Darlow-Elmer Complex, 0 To 2 Percent Slopes

Darlow soil makes up 70 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace 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 very slow. 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 2 percent calcium carbonate. This soil contains a moderately saline horizon, it has a horizon that is strongly sodic. This soil is in the Clay Pan (pe21-28) range site. This soil is in the irrigated land capability class 4s. It is in the nonirrigated land capability classification 4s.

Elmer soil makes up 20 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is very low. The parent material consists of loamy alluvium. This soil is moderately 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 2 percent calcium carbonate. This soil contains a very slightly saline horizon, it has a horizon that is strongly sodic. This soil is in the Loamy Terrace (pe21-28) range site. This soil is in the irrigated land capability class 3s. It is in the nonirrigated land capability classification 3s.

Nontechnical Soil Descriptions--Continued  
Stafford County, Kansas

1555 Dillhut-Plev Complex, 0 To 2 Percent Slopes

Dillhut soil makes up 35 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 over alluvium. This soil is moderately well drained. The slowest permeability is moderate. 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 Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Plev soil makes up 35 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level depression on paleoterrace on river valley, interdune on paleoterrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits over loamy alluvium. This soil is poorly drained. The slowest permeability is moderate. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 6 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

1556 Dillhut-Solvay Complex, 0 To 3 Percent Slopes

Dillhut soil makes up 30 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 over alluvium. This soil is moderately well drained. The slowest permeability is moderate. 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 Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Solvay soil makes up 30 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping interdune on paleoterrace on river valley. The runoff class is very low. The parent material consists of loamy eolian deposits over alluvium. This soil is somewhat poorly 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 top of the seasonal high water table is at 36 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 2e.

1725 Farnum And Funmar Loams, 0 To 1 Percent Slopes

Funmar soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level paleoterrace on river valley. The runoff class is very low. The parent material consists of loamy alluvium over alluvium. This soil is moderately well drained. The slowest permeability is 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 (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Farnum soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level paleoterrace on river valley. The runoff class is very low. The parent material consists of 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. This soil is in the Loamy Upland (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

1726 Funmar And Farnum Loams, 1 To 3 Percent Slopes

Farnum soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on river valley. The runoff class is low. The parent material consists of 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. This soil is in the Loamy Upland (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Funmar soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on river valley. The runoff class is low. The parent material consists of loamy alluvium over alluvium. This soil is moderately well drained. The slowest permeability is 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 (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

1985 Hayes Fine Sandy Loam, 1 To 5 Percent Slopes

Hayes soil makes up 60 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping dune on paleoterrace on river valley. The runoff class is low. The parent material consists of loamy eolian deposits over clayey alluvium. This soil is well drained. The slowest permeability is slow. 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 (pe21-28) 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  
Stafford County, Kansas

1986 Hayes-Solvay Loamy Fine Sands, 0 To 5 Percent Slopes

Hayes soil makes up 55 percent of the map unit. This map unit is in the 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 low. The parent material consists of loamy eolian deposits over clayey alluvium. This soil is well drained. The slowest permeability is slow. 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 (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Solvay soil makes up 20 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping interdune on paleoterrace on river valley. The runoff class is very low. The parent material consists of loamy eolian deposits over alluvium. This soil is somewhat poorly 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 top of the seasonal high water table is at 36 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 2e.

1987 Hayes-Turon Complex, 0 To 5 Percent Slopes

Hayes soil makes up 40 percent of the map unit. This map unit is in the 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 low. The parent material consists of loamy eolian deposits over clayey alluvium. This soil is well drained. The slowest permeability is slow. 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 (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Turon soil makes up 35 percent of the map unit. This map unit is in the 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 low. The parent material consists of sandy eolian deposits over alluvium. This soil is well drained. The slowest permeability is very slow. 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 Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

1988 Hayes Loamy Fine Sand, 5 To 10 Percent Slopes

Hayes soil makes up 70 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping dune on paleoterrace on river valley. The runoff class is low. The parent material consists of loamy eolian deposits over clayey alluvium. This soil is well drained. The slowest permeability is slow. 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 (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

2381 Kanza-Ninescah Sandy Loams, 0 To 2 Percent Slopes, Commonly Flooded

Kanza soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is very low. The parent material consists of alluvium. This soil is poorly drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 18 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

Ninescah soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is very low. The parent material consists of loamy alluvium. This soil is 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 24 inches. The soil contains a maximum amount of 14 percent calcium carbonate. This soil contains a very slightly saline horizon, it has a horizon that is slightly sodic. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

2556 Langdon Fine Sand, 0 To 15 Percent Slopes

Langdon soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to moderately steep dune on paleoterrace on river valley. The runoff class is medium. The parent material consists of sandy eolian deposits. This soil is somewhat 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 (pe21-28) range site. It is in the nonirrigated land capability classification 6e.



Nontechnical Soil Descriptions--Continued  
Stafford County, Kansas

2958 Ninnescah Fine Sandy Loam, 0 To 1 Percent Slopes, Occasionally Flooded

Ninnescah soil makes up 85 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 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 24 inches. The soil contains a maximum amount of 14 percent calcium carbonate. This soil contains a very slightly saline horizon, it has a horizon that is slightly sodic. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

3053 Ost Loam, 1 To 3 Percent Slopes

Ost soil makes up 85 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on river valley. The runoff class is low. The parent material consists of loamy alluvium. 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 34 percent calcium carbonate. This soil is in the Loamy Upland (pe24-32) range site. It is in the nonirrigated land capability classification 2c.

3180 Pratt Fine Sand, 5 To 10 Percent Slopes

Pratt soil makes up 85 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping dune on paleoterrace on river valley. The runoff class is 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. This soil is in the Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

3181 Pratt-Turon Fine Sands, 1 To 5 Percent Slopes

Pratt soil makes up 45 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping dune on paleoterrace on river valley. The runoff class is 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. This soil is in the Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Turon soil makes up 30 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping dune on paleoterrace on river valley. The runoff class is low. The parent material consists of sandy eolian deposits over alluvium. This soil is well drained. The slowest permeability is very slow. 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 Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

3511 Saltcreek And Naron Fine Sandy Loams, 0 To 1 Percent Slopes

Saltcreek soil makes up 70 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level dune on paleoterrace on river valley. The runoff class is very low. The parent material consists of loamy eolian deposits over alluvium. 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 Sandy (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 3e.

Naron, sandy substratum, soil makes up 30 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level dune on paleoterrace on river valley. The runoff class is very 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 (pe21-28) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

3512 Saltcreek And Naron Fine Sandy Loams, 1 To 3 Percent Slopes

Saltcreek soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping dune on paleoterrace on river valley. The runoff class is low. The parent material consists of loamy eolian deposits over alluvium. 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 Sandy (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued  
Stafford County, Kansas

Naron soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping dune on paleoterrace on river valley. 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. This soil is in the Sandy (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

3520 Saxman Loamy Sand, 0 To 1 Percent Slopes

Saxman soil makes up 85 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 sandy alluvium. This soil is moderately well drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The top of the seasonal high water table is at 30 inches. This soil is in the Sandy Lowland (pe21-28) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

3540 Solvay Loamy Fine Sand, 0 To 2 Percent Slopes

Solvay soil makes up 90 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping interdune on paleoterrace on river valley. The runoff class is very low. The parent material consists of loamy eolian deposits over alluvium. This soil is somewhat poorly 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 top of the seasonal high water table is at 36 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 2e.

3639 Taver Loam, 0 To 1 Percent Slopes

Taver soil makes up 90 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level paleoterrace on river valley. The runoff class is very low. The parent material consists of clayey alluvium. This soil is moderately well drained. The slowest permeability is very 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 (pe21-28) range site. It is in the nonirrigated land capability classification 2s.

3640 Tivin Fine Sand, 10 To 30 Percent Slopes

Tivin soil makes up 95 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a strongly sloping to steep dune on paleoterrace on river valley. The runoff class is medium. The parent material consists of sandy eolian deposits. This soil is somewhat 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 (pe21-28) range site. It is in the nonirrigated land capability classification 6e.

3641 Tivin-Dillhut Fine Sands, 0 To 15 Percent Slopes

Tivin soil makes up 45 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping to moderately steep dune on paleoterrace on river valley. The runoff class is medium. The parent material consists of sandy eolian deposits. This soil is somewhat 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 (pe21-28) range site. It is in the nonirrigated land capability classification 6e.

Dillhut soil makes up 40 percent of the map unit. This map unit is in the 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 over alluvium. This soil is moderately well drained. The slowest permeability is moderate. 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 Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

3644 Turon-Carway Complex, 0 To 5 Percent Slopes

Turon soil makes up 65 percent of the map unit. This map unit is in the 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 sandy eolian deposits over alluvium. This soil is well drained. The slowest permeability is very slow. 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 Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Carway soil makes up 20 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level interdune on depression on paleoterrace on river valley. The runoff class is very low. The parent material consists of loamy eolian deposits over alluvium. This soil is somewhat 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 frequent 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 Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 2w.

Nontechnical Soil Descriptions--Continued  
Stafford County, Kansas

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An Albion Sandy Loam, 1 To 4 Percent Slopes

Albion soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping paleoterrace on river valley. The runoff class is very low. 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 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 3e.

At Attica Fine Sandy Loam, 1 To 4 Percent Slopes

Attica soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. 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.

Ba Blanket Silt Loam, 0 To 1 Percent Slopes

Blanket soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level paleoterrace on river valley. The runoff class is negligible. The parent material consists of clayey alluvium. 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. This soil is in the Loamy Upland (pe21-28) range site. It is in the nonirrigated land capability classification 2c.

Ca Carwile Fine Sandy Loam, 0 To 1 Percent Slopes

Carwile soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level depression on paleoterrace on river valley. The runoff class is negligible. The parent material consists of alluvium. This soil is somewhat poorly 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 frequent ponded. The top of the seasonal high water table is at 0 inches. This soil is in the Sandy (pe21-28) range site. It is in the nonirrigated land capability classification 2w.

Cw Carwile Complex, 0 To 1 Percent Slopes

Carwile soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level depression on paleoterrace on river valley. The runoff class is negligible. The parent material consists of alluvium. This soil is somewhat poorly 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 frequent ponded. The top of the seasonal high water table is at 0 inches. This soil is in the Sandy (pe21-28) range site. It is in the nonirrigated land capability classification 2w.

Cx Clark Loam, 1 To 3 Percent Slopes

Clark soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on river valley. 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 45 percent calcium carbonate. This soil is in the Limy Upland (pe21-28) range site. It is in the nonirrigated land capability classification 3e.

Dp Dillwyn-Plevna Complex, 0 To 5 Percent Slopes

Dillwyn soil makes up 65 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping interdune on paleoterrace on river valley, dune on paleoterrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat poorly 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 top of the seasonal high water table is at 24 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 4w.

Plevna soil makes up 35 percent of the map unit. This map unit is in the Great Bend Sand 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 alluvium. This soil is poorly drained. The slowest permeability is moderately 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 12 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

Dt Dillwyn-Tivoli Loamy Fine Sands, 0 To 15 Percent Slopes

Dillwyn soil makes up 65 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping interdune on paleoterrace on river valley, dune on paleoterrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat poorly 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 top of the seasonal high water table is at 24 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 4w.

NONTECHNICAL SOIL DESCRIPTIONS--Continued  
Stafford County, Kansas

Tivoli soil makes up 35 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 Sands (pe21-28) range site. It is in the nonirrigated land capability classification 7e.

**Fa Farnum Fine Sandy Loam, 0 To 1 Percent Slopes**

Farnum soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level paleoterrace on river valley. The runoff class is negligible. The parent material consists of 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. This soil is in the Sandy (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2e.

**Fr Farnum Loam, 0 To 2 Percent Slopes**

Farnum soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level paleoterrace on river valley. The runoff class is negligible. The parent material consists of 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. This soil is in the Loamy Upland (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

**INT Aquolls**

Aquolls soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains 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.

**Kg Kingman Silty Clay Loam, Occasionally Flooded**

Kingman soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level flood plain. The runoff class is negligible. The parent material consists of alluvium. This soil is 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 12 inches. This soil contains a very slightly saline horizon. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

**Na Naron Fine Sandy Loam, 0 To 3 Percent Slopes**

Naron soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping dune on paleoterrace on river valley. 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. This soil is in the Sandy (pe21-28) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

**NAA Naron Fine Sandy Loam, 0 To 1 Percent Slopes**

Naron soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level dune on paleoterrace on river valley. The runoff class is negligible. 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. This soil is in the Sandy (pe21-28) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2e.

**NBB Naron Fine Sandy Loam, 1 To 3 Percent Slopes**

Naron soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a gently sloping dune on paleoterrace on river valley. The runoff class is very 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. This soil is in the Sandy (pe21-28) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

**Nu Natrustolls, Occasionally Flooded**

Natrustolls soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of alluvium. This soil is somewhat poorly drained. The slowest permeability is very slow. It has a very low 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 36 inches. This soil contains a moderately saline horizon. This soil is in the Saline Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 6s.

Nontechnical Soil Descriptions--Continued  
Stafford County, Kansas

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**Pa Plevna Soils, Frequently Flooded**

Plevna soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand 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 alluvium. This soil is poorly drained. The slowest permeability is moderately 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 12 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

**Pc Plevna Soils, Channeled**

Plevna soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand 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 alluvium. This soil is poorly drained. The slowest permeability is moderately 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 12 inches. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 5w.

**Ph Pratt Loamy Fine Sand, 5 To 10 Percent Slopes**

Pratt soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 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 Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

**Po Pratt Loamy Fine Sand, 1 To 5 Percent Slopes**

Pratt soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 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 Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

**Pr Pratt-Carwile Complex, 0 To 8 Percent Slopes**

Pratt soil makes up 60 percent of the map unit. This map unit is in the 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 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. This soil is in the Sands (pe21-28) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Carwile soil makes up 40 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level depression on paleoterrace on river valley. The runoff class is negligible. The parent material consists of alluvium. This soil is somewhat poorly 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 frequent ponded. The top of the seasonal high water table is at 0 inches. This soil is in the Sandy (pe21-28) range site. It is in the nonirrigated land capability classification 2w.

**Pt Pratt-Tivoli Loamy Fine Sands, 5 To 15 Percent Slopes**

Pratt soil makes up 65 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 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 Sands (pe21-28) 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 35 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 Sands (pe21-28) range site. It is in the nonirrigated land capability classification 7e.

**Ta Tabler Loam, 0 To 1 Percent Slopes**

Tabler soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level paleoterrace on river valley. The runoff class is negligible. The parent material consists of clayey alluvium. This soil is moderately well drained. The slowest permeability is very 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. This soil is in the Clay Upland (pe21-28) range site. It is in the nonirrigated land capability classification 2s.

Nontechnical Soil Descriptions--Continued  
Stafford County, Kansas

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TAA Tabler Clay Loam, 0 To 1 Percent Slopes

Tabler soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level paleoterrace on river valley. The runoff class is very low. The parent material consists of clayey alluvium. This soil is moderately well drained. The slowest permeability is very 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. This soil is in the Clay Upland (pe21-28) range site. It is in the nonirrigated land capability classification 2s.

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 Great Bend Sand Plains 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 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. This soil is in the Choppy Sands (pe21-28) range site. It is in the nonirrigated land capability classification 7e.

Wa Waldeck Fine Sandy Loam, Occasionally Flooded

Waldeck soil makes up 100 percent of the map unit. This map unit is in the Great Bend Sand 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 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. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 3w.

Za Zenda-Natrustolls Complex, Occasionally Flooded

Zenda soil makes up 80 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level dune on paleoterrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat poorly 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 top of the seasonal high water table is at 36 inches. This soil contains a very slightly saline horizon. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 4s.

Natrustolls soil makes up 20 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level <geomorphology is missing>. The runoff class is negligible. <parent material is missing> This soil is somewhat poorly drained. The slowest permeability is very slow. It has a very low 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 36 inches. This soil contains a moderately saline horizon. It is in the nonirrigated land capability classification 6s.

ZSS Zenda-Drummond Complex, Occasionally Flooded

Zenda soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains 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 sandy eolian deposits. This soil is somewhat poorly 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 top of the seasonal high water table is at 36 inches. This soil contains a very slightly saline horizon. This soil is in the Subirrigated (pe21-28) range site. It is in the nonirrigated land capability classification 4s.

Drummond soil makes up 50 percent of the map unit. This map unit is in the Great Bend Sand Plains Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is very low. The parent material consists of clayey and/or loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is very slow. It has a very low 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 36 inches. This soil contains a moderately saline horizon. This soil is in the Saline Lowland (pe21-28) range site. It is in the nonirrigated land capability classification 6s.

**009DT—Dillwyn-Tivoli complex, 0 to 15 percent slopes****Map Unit Composition**

Dillwyn: 60 percent

Tivoli: 40 percent

**Component Descriptions****Dillwyn**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Interdune on paleoterrace on river valley, dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Low (About 4.9 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 12 to 36 inches

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 4w

*Typical Profile:*

H1—0 to 8 inches; loamy fine sand

H2—8 to 60 inches; loamy fine sand

**Tivoli**

*MLRA:* 79 - Great Bend Sand Plains

*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 5.95 in/hr)

*Available water capacity:* Very low (About 3.0 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:* Sands (pe21-28)

*Land capability (nonirrigated):* 7e

*Typical Profile:*

H1—0 to 6 inches; fine sand

H2—6 to 60 inches; fine sand

**Minor Components**

**Carwile**

**Unnamed Wet Soils**

*Phase:* Sandy, Depression

**009TV—Tivoli fine sand, 15 to 30 percent slopes****Map Unit Composition**

Tivoli: 100 percent

**Component Descriptions****Tivoli**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 5 to 30 percent

*Drainage class:* Excessively drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Very low (About 3.0 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:* Choppy Sands (pe21-28)

*Land capability (nonirrigated):* 7e

*Typical Profile:*

H1—0 to 6 inches; fine sand

H2—6 to 60 inches; fine sand

**Minor Components**

**Unnamed Hydric Soil**

**047CS—Carwile-Drummond complex, 0 to 1 percent slopes****Map Unit Composition**

Carwile: 90 percent

Drummond: 10 percent

## Component Descriptions

### Carwile

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Depression on paleoterrace on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* High (About 9.4 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Ponding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 0 inches

*Runoff class:* Negligible

*Ecological site:* Sandy (pe21-28)

*Land capability (nonirrigated):* 2w

#### *Typical Profile:*

H1—0 to 11 inches; fine sandy loam

H2—11 to 17 inches; sandy clay loam

H3—17 to 42 inches; clay

H4—42 to 60 inches; clay loam

### Drummond

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Terrace on river valley

*Parent material:* Clayey and/or loamy alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* Low (About 3.7 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 24 to 72 inches

*Runoff class:* Negligible

*Ecological site:* Saline Lowland (pe21-28)

*Land capability (nonirrigated):* 6s

#### *Typical Profile:*

H1—0 to 8 inches; fine sandy loam

H2—8 to 30 inches; clay loam

H3—30 to 30 inches;

### Minor Components

#### Unnamed Wet Soils

*Phase:* Loamy, Depression

## 151KP—Kanza-Plevna complex, frequently flooded

### Map Unit Composition

Kanza: 50 percent

Plevna: 50 percent

## Component Descriptions

### Kanza

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Low (About 3.8 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 36 inches

*Runoff class:* Negligible

*Land capability (nonirrigated):* 5w

#### *Typical Profile:*

H1—0 to 11 inches; loamy fine sand

H2—11 to 40 inches; fine sand

### Plevna

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly 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:* Frequent

*Depth to seasonal water saturation:* About 0 to 24 inches

*Runoff class:* Negligible

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 5w

#### *Typical Profile:*

H1—0 to 10 inches; fine sandy loam

H2—10 to 40 inches; fine sandy loam

H3—40 to 60 inches; fine sand



**159DP—Dillwyn-Plevna loamy fine sands, 0 to 1 percent slopes****Map Unit Composition**

Dillwyn: 60 percent  
Plevna: 40 percent

**Component Descriptions****Dillwyn**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Interdune on paleoterrace on river valley, dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Low (About 4.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 12 to 36 inches  
*Runoff class:* Negligible  
*Ecological site:* Subirrigated (pe21-28)  
*Land capability (nonirrigated):* 4w

*Typical Profile:*

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

**Plevna**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Flood plain on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Low (About 5.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* About 0 to 24 inches  
*Runoff class:* Negligible  
*Ecological site:* Subirrigated (pe21-28)  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 10 inches; loamy fine sand  
H2—10 to 33 inches; fine sandy loam  
H3—33 to 60 inches; fine sand

**159DT—Dillwyn-Tivoli complex, 0 to 20 percent slopes****Map Unit Composition**

Dillwyn: 60 percent  
Tivoli: 40 percent

**Component Descriptions****Dillwyn**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Interdune on paleoterrace on river valley, dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Low (About 4.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 12 to 36 inches  
*Runoff class:* Negligible  
*Ecological site:* Subirrigated (pe21-28)  
*Land capability (nonirrigated):* 4w

*Typical Profile:*

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

**Tivoli**

*MLRA:* 79 - Great Bend Sand Plains  
*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 5.95 in/hr)  
*Available water capacity:* Very low (About 3.0 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:* Choppy Sands (pe21-28)  
*Land capability (nonirrigated):* 7e

*Typical Profile:*

H1—0 to 7 inches; fine sand  
H2—7 to 60 inches; fine sand

**Minor Components****Plevna****Unnamed Wet Soils***Phase: Sandy, Depression***159DU—Drummond complex, 0 to 1 percent slopes****Map Unit Composition**

Drummond: 100 percent

**Component Descriptions****Drummond***MLRA: 79 - Great Bend Sand Plains**Landform: Terrace on river valley**Parent material: Clayey and/or loamy alluvium**Slope: 0 to 1 percent**Drainage class: Somewhat poorly drained**Slowest permeability: Very slow (About 0.00 in/hr)**Available water capacity: Low (About 4.9 inches)**Shrink-swell potential: High (About 7.5 LEP)**Flooding hazard: None**Depth to seasonal water saturation: About 24 to 72 inches**Runoff class: Negligible**Ecological site: Saline Lowland (pe21-28)**Land capability (nonirrigated): 6s**Typical Profile:*

H1—0 to 8 inches; silty clay loam

H2—8 to 35 inches; silty clay loam

H3—35 to 60 inches; silty clay loam

**Minor Components****Unnamed Wet Soils***Phase: Clayey, Depression***159PE—Plevna fine sandy loam, frequently flooded****Map Unit Composition**

Plevna: 100 percent

**Component Descriptions****Plevna***MLRA: 79 - Great Bend Sand Plains**Landform: Flood plain on river valley**Parent material: Alluvium**Slope: 0 to 1 percent**Drainage class: Poorly drained**Slowest permeability: Moderately rapid (About 2.00 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 0 to 24 inches**Runoff class: Negligible**Ecological site: Subirrigated (pe21-28)**Land capability (nonirrigated): 5w**Typical Profile:*

H1—0 to 10 inches; fine sandy loam

H2—10 to 33 inches; fine sandy loam

H3—33 to 60 inches; fine sand

**990—Abbyville loam, 0 to 1 percent slopes***Mapunit Information:* The soils in this map unit generally have a non-saline surface layer. The subsoils are very slightly to slightly saline with a high content of adsorbed sodium.**Map Unit Composition**

Abbyville: 95 percent

Minor components: 5 percent

**Component Descriptions****Abbyville***MLRA: 79 - Great Bend Sand Plains**Landform: Terrace on river valley**Parent material: Loamy alluvium**Slope: 0 to 1 percent**Drainage class: Somewhat poorly drained**Slowest permeability: Slow (About 0.06 in/hr)**Available water capacity: Moderate (About 7.2 inches)**Shrink-swell potential: Moderate (About 4.5 LEP)**Flooding hazard: None*

*Depth to seasonal water saturation:* About 24 to 48 inches

*Runoff class:* Very low

*Ecological site:* Saline Subirrigated (pe21-28)

*Land capability (irrigated):* 3s

*Land capability (nonirrigated):* 3s

*Typical Profile:*

A—0 to 8 inches; loam

Btknz1—8 to 15 inches; sandy clay loam

Btknz2—15 to 24 inches; clay loam

Btknz3—24 to 35 inches; clay loam

Btknz4—35 to 49 inches; clay loam

Btkn1—49 to 61 inches; sandy clay loam

Btkn2—61 to 69 inches; loam

Btkn3—69 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Slickspots. Included with this soil in mapping are small areas that have a fine sandy loam or clay loam surface texture. Also included with this soil in mapping are small areas with very slightly to slightly saline surface layer.

### Minor Components

#### Kisiwa

*Composition:* About 5 percent

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Ecological site:* Saline Subirrigated (pe21-28)

*General Considerations:* This map unit is poorly suited to the commonly grown crops due to the sodic conditions and wetness. Most areas are used for pasture or range. For areas that are cropped, the hazard of wind or water erosion is slight. Maintaining soil tilth and soil crusting are problems, but they can be improved by adding organic matter. The high sodium content, pH, soluble salts, and water table limit the engineering uses of these soils.

## 991—Abbyville-Kisiwa complex, 0 to 2 percent slopes, flooded

*Mapunit Information:* The Abbyville and Kisiwa soils have a high content of adsorbed sodium. Surface soluble salt content is variable in these two soils. The Saxman soils are sandy and occur on natural levees and high flood plains where sandy sediments have accumulated. The Abbyville soils are on high flood plains and are rarely flooded.

The Kisiwa soils are lower on the landscape and are occasionally flooded.

## Map Unit Composition

Abbyville: 45 percent

Kisiwa: 40 percent

Minor components: 15 percent

## Component Descriptions

### Abbyville

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Terrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* Moderate (About 7.1 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* Rare

*Depth to seasonal water saturation:* About 24 to 48 inches

*Runoff class:* Very low

*Ecological site:* Saline Subirrigated (pe21-28)

*Land capability (irrigated):* 3s

*Land capability (nonirrigated):* 3s

*Typical Profile:*

A—0 to 8 inches; fine sandy loam

Btknz1—8 to 15 inches; sandy clay loam

Btknz2—15 to 24 inches; clay loam

Btknz3—24 to 35 inches; clay loam

Btknz4—35 to 49 inches; clay loam

Btkn1—49 to 61 inches; sandy clay loam

Btkn2—61 to 69 inches; loam

Btkn3—69 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Slickspots. Included with this soil in mapping are small areas that have a fine sandy loam or clay loam surface texture. Also included with this soil in mapping are small areas with very slightly to slightly saline surface layer. In some places there are slope inclusions of greater than 1 percent.

### Kisiwa

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley, terrace on river valley

*Parent material:* Loamy alluvium over clayey alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

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

*Available water capacity:* Moderate (About 8.7 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* Occasional

*Ponding hazard:* Occasional

*Depth to seasonal water saturation:* About 0 to 0 inches

*Runoff class:* Very low

*Ecological site:* Saline Subirrigated (pe21-28)

*Land capability (nonirrigated):* 4s

*Typical Profile:*

Ap1—0 to 4 inches; loam

Ap2—4 to 7 inches; loam

Btkn—7 to 14 inches; clay loam

Btknssg1—14 to 23 inches; clay loam

Btknssg2—23 to 31 inches; clay

Btknssg3—31 to 40 inches; clay

Btknssg4—40 to 46 inches; loam

Btkg—46 to 52 inches; fine sandy loam

BCg—52 to 58 inches; fine sandy loam

Cg—58 to 65 inches; stratified coarse sand to fine sandy loam

2C—65 to 80 inches; stratified coarse sand

*Component note:* This soil was formerly mapped as Slickspots. Included with this soil in mapping are small areas with a fine sandy loam, loam, or loamy fine sand surface texture. Included with this soil are small areas with very slightly saline to moderately saline surface layers. In some places there are slope inclusions of greater than 1 percent.

**Minor Components**

**Saxman**

*Composition:* About 10 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Sandy Lowland (pe21-28)

**Darlow**

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Pan (pe21-28)

*General Considerations:* This map unit is poorly suited to the commonly grown crops due to the sodic conditions, wetness, and potential flooding. Most areas are used for pasture or range. For areas that are cropped, The hazard of wind erosion is severe on the Abbyville and Saxman soils. Maintaining soil tilth and soil crusting are problems, but they

can be improved by adding organic matter. Ephemeral gully erosion potential is high on the Abbyville and Kisiwa soils. The high sodium content, pH, soluble salts, water tables, and flooding limit the engineering of these soils.

**1005—Albion sandy loam, 1 to 3 percent slopes**

*Mapunit Information:* The Albion soils are generally located on the steeper upper portion of the side slopes.

**Map Unit Composition**

Albion: 75 percent

Minor components: 25 percent

**Component Descriptions**

**Albion**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

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

*Available water capacity:* Moderate (About 7.3 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 (pe21-28)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 9 inches; sandy loam

Bt1—9 to 16 inches; sandy loam

Bt2—16 to 27 inches; sandy loam

BC—27 to 48 inches; loamy coarse sand

C—48 to 80 inches; sand

*Component note:* Included with this soil in mapping are small areas with a gravelly sandy loam, coarse sandy loam, loamy sand, or loamy coarse sand surface texture. Also included with this soil are soils that contain several discontinuous clay lenses occurring within the soil profile between 20 and 80 inches. The clay lenses range in thickness from 1 to 12 inches thick and in texture from silty clay to sandy clay loam.

About 10 to 25 percent of the Albion soils have been subject to moderate erosion, which results in thinner surface layers and low and very low organic matter content. The eroded soils generally have loamy sand, loamy coarse sand, or gravelly loamy coarse sand surface textures.

### Minor Components

#### Shellabarger

*Composition:* About 25 percent  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

### Unnamed Wet Soils

*General Considerations:* Most areas are used as cropland, but some areas are in pasture or range. This map unit is moderately well suited to all of the commonly grown crops. Wheat, grain sorghum, soybeans, and irrigated corn are the main crops. The hazard of wind erosion is severe and the hazard of water erosion is moderate for these soils. Ephemeral gully erosion potential is moderate for these soils. Wind and water erosion can be controlled maintaining plant residue through the use of a conservation tillage system, strip cropping, field windbreaks, contour farming, tall grass barriers, terraces and grassed waterways. The moderate water holding capacity of these soils can limit production. This problem can be minimized by increasing organic matter, leaving plant residue, and conservation tillage. In some places, soil test results may show soil reaction (pH) in the strongly acid range. Additions of lime may be required for optimum nutrient balance. The moderately rapid permeability and relatively shallow depths to sandy textures can limit some of the engineering uses of these soils.

## 1011—Albion-Shellabarger sandy loams, 1 to 3 percent slopes

*Mapunit Information:* The Albion soils are generally located on the steeper upper portion of the side slopes. The Shellabarger soils are generally located on the less steep lower side slopes.

## Map Unit Composition

Albion: 70 percent  
 Shellabarger: 30 percent

## Component Descriptions

### Albion

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Moderate (About 7.3 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 (pe21-28)  
*Land capability (nonirrigated):* 3e

### Typical Profile:

Ap—0 to 9 inches; sandy loam  
 Bt1—9 to 16 inches; sandy loam  
 Bt2—16 to 27 inches; sandy loam  
 BC—27 to 48 inches; loamy coarse sand  
 C—48 to 80 inches; sand

*Component note:* Included with this soil in mapping are small areas with a gravelly sandy loam, coarse sandy loam, loamy sand, or loamy coarse sand surface texture. Also included with this soil are soils that contain several discontinuous clay lenses occurring within the soil profile between 20 and 80 inches. The clay lenses range in thickness from 1 to 12 inches thick and in texture from silty clay to sandy clay loam. About 10 to 25 percent of the Albion soils have been subject to moderate erosion, which

results in thinner surface layers and low and very low organic matter content. The eroded soils generally have loamy sand, loamy coarse sand, or gravelly loamy coarse sand surface textures.

### Shellabarger

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 1 to 3 percent

*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 8.5 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 (pe21-28)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

Ap—0 to 7 inches; sandy loam  
 Bt1—7 to 11 inches; sandy clay loam  
 Bt2—11 to 19 inches; sandy clay loam  
 Bt3—19 to 33 inches; sandy loam  
 BC—33 to 47 inches; coarse sandy loam  
 C1—47 to 59 inches; loamy sand  
 C2—59 to 73 inches; sand  
 C3—73 to 80 inches; sand

*Component note:* These soils are very deep, well drained, moderately permeable soils formed in loamy and sandy old alluvium. They are on positions similar to the Albion soils. These soils have a sandy loam or coarse sandy loam surface texture. The Shellabarger soils contain more clay in the subsoil than Albion soils. Also included in the mapunit are small areas of Nalim Soils. In some places, several laterally discontinuous clay lenses occur within the soil profile between 30 to 80 inches. The lenses range in thickness from 1 to 12 inches thick and also range in texture from silty clay to sandy clay loam.

**Minor Components**  
**Unnamed Wet Soils**

*General Considerations:* Most areas are used as cropland, but some areas are in pasture or range. This map unit is moderately well suited to all of the commonly grown crops. Wheat, grain sorghum, soybeans, and irrigated corn are the main crops. The hazard of wind erosion is severe and the hazard of water erosion is moderate for these soils. Ephemeral gully erosion potential is moderate for these soils. Wind and water erosion can be controlled maintaining plant residue through the use of a conservation tillage system, strip cropping, field windbreaks, contour farming, tall grass barriers, terraces and grassed waterways.

The moderate water holding capacity of these soils can limit production. This problem can be minimized by increasing organic matter, leaving plant residue, and conservation tillage. In some places, soil test results may show soil reaction (pH) in the strongly acid range. Additions of lime may be required for optimum nutrient balance. The moderately rapid permeability and relatively shallow depths to sandy textures can limit some of the engineering uses of these soils.

**1324—Carway and Carbika Soils, 0 to 1 percent slopes**

*Mapunit Information:* Carway soils are in the interdunal areas which sit higher than the Carbika soils in the depressional areas on the paleoterrace.

**Map Unit Composition**

Carway: 50 percent  
 Carbika: 30 percent  
 Minor components: 20 percent

**Component Descriptions**

**Carway**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Interdune on depression on paleoterrace on river valley  
*Parent material:* Loamy eolian deposits over alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* High (About 9.0 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Ponding hazard:* Frequent  
*Depth to seasonal water saturation:* About 0 to 0 inches  
*Runoff class:* Very low  
*Ecological site:* Subirrigated (pe21-28)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 7 inches; fine sandy loam  
 Bt1—7 to 10 inches; sandy clay loam  
 Bt2—10 to 15 inches; sandy clay loam  
 Bt3—15 to 22 inches; fine sandy loam

Bt4—22 to 35 inches; fine sandy loam  
 2Btb1—35 to 40 inches; clay loam  
 2Btb2—40 to 54 inches; clay loam  
 2Btb3—54 to 63 inches; clay loam  
 2Btb4—63 to 72 inches; clay loam  
 2Btkb—72 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Carwile. Included with this soil in mapping are small areas with a loamy fine sand surface texture.

### **Carbika**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Interdune on depression on paleoterrace on river valley

*Parent material:* Loamy eolian deposits over alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

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

*Available water capacity:* High (About 9.6 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Ponding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 0 inches

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 2w

#### *Typical Profile:*

A—0 to 11 inches; silt loam  
 Bt1—11 to 15 inches; clay  
 Bt2—15 to 22 inches; clay loam  
 Bt3—22 to 34 inches; clay loam  
 Bt4—34 to 41 inches; clay loam  
 Bt5—41 to 60 inches; clay loam  
 Btk—60 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Carwile.

### **Minor Components**

#### **Solvay**

*Composition:* About 20 percent

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in cropland but, some are in pasture or range. This mapunit is poorly suited for the most commonly grown crops. Wheat and grain sorghum are the predominant crops. The hazard for wind and water erosion is slight. The presence of water tables and potential

for high shrink-swell limit most engineering uses for this mapunit.

## **1359—Clark-Ost loams, 3 to 7 percent slopes**

*Mapunit Information:* Ost soils occur slightly higher on the paleoterrace than Clark soils.

### **Map Unit Composition**

Clark: 70 percent

Ost: 30 percent

### **Component Descriptions**

#### **Clark**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 3 to 7 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 (pe21-28)

*Land capability (nonirrigated):* 2c

#### *Typical Profile:*

Ap—0 to 11 inches; loam  
 Bw—11 to 16 inches; loam  
 Bk1—16 to 28 inches; loam  
 Bk2—28 to 45 inches; fine sandy loam  
 Bck1—45 to 65 inches; fine sandy loam  
 Ck2—65 to 80 inches; very fine sandy loam

*Component note:* Included with this soil in mapping are small areas with a fine sandy loam surface texture. Also included are small areas with slopes of less than 3 percent.

#### **Ost**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* 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 10.0 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 (pe24-32)  
*Land capability (nonirrigated):* 2c

*Typical Profile:*

Ap—0 to 8 inches; loam  
 Bt1—8 to 12 inches; loam  
 Bt2—12 to 18 inches; loam  
 Bk1—18 to 23 inches; clay loam  
 Bk2—23 to 38 inches; clay loam  
 BCk—38 to 54 inches; loam  
 C—54 to 80 inches; loam

*Component note:* These soils are very deep, well drained, moderately slowly permeable soils formed in loamy alluvium. Some areas may have a fine sandy loam surface texture. In some places there are areas of less than 3 percent slopes.

**Minor Components  
 Unnamed Wet Soils**

*General Considerations:* Most areas are used as pasture or rangeland. Some areas are used as cropland. The hazard of wind and water erosion is moderately severe. This mapunit is well suited for most engineering practices. The slopes and amount of calcium carbonates can limit some practices.

**1553—Darlow-Elmer complex, 0 to 2 percent slopes**

*Mapunit Information:* Darlow soils generally occur on lower areas of the paleoterrace. The soils in this map unit generally have a non-saline surface layer. The subsoils are very slightly to slightly saline with a high content of adsorbed sodium.

**Map Unit Composition**

Darlow: 70 percent  
 Elmer: 20 percent  
 Minor components: 10 percent

**Component Descriptions**

**Darlow**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Terrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Moderate (About 7.6 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Clay Pan (pe21-28)  
*Land capability (irrigated):* 4s  
*Land capability (nonirrigated):* 4s

*Typical Profile:*

Ap1—0 to 5 inches; loam  
 Ap2—5 to 8 inches; loam  
 Btn—8 to 14 inches; loam  
 Btny—14 to 20 inches; clay loam  
 Btknyz—20 to 26 inches; loam  
 Btnz1—26 to 33 inches; loam  
 Btnz2—33 to 44 inches; loam  
 Btn1—44 to 53 inches; loam  
 Btn2—53 to 68 inches; loam  
 2Btn3—68 to 80 inches; sandy loam

*Component note:* This soil was formerly mapped as Farnum-Slickspots. Included with this soil are small areas with a fine sandy loam surface textures. Also included are small areas where the surface layer may be very slightly to slightly saline. In some places there slope inclusions of greater than 1 percent.

**Elmer**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Terrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 9.1 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Loamy Terrace (pe21-28)  
*Land capability (irrigated):* 3s



*Land capability (nonirrigated): 3s*

**Typical Profile:**

Ap1—0 to 6 inches; fine sandy loam  
 Ap2—6 to 9 inches; fine sandy loam  
 AB—9 to 19 inches; fine sandy loam  
 Btn1—19 to 26 inches; fine sandy loam  
 Btn2—26 to 37 inches; fine sandy loam  
 Btnk1—37 to 43 inches; loam  
 Btnk2—43 to 51 inches; clay loam  
 Btnk3—51 to 61 inches; fine sandy loam  
 Btn1'—61 to 72 inches; fine sandy loam  
 Btn2'—72 to 80 inches; fine sandy loam

**Component note:** This series was formerly mapped as Farnum-Slickspots. These soils are very deep, moderately well drained, slowly permeable saline-sodic soils formed in alluvium. In some places the surface texture may be a loam. In some areas there may be a very slightly to slightly saline surface layer. In some places there are slope inclusions of greater than 1 percent.

**Minor Components**

**Punkin**

*Composition:* About 10 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Pan (pe21-28)

**Carway**

*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

**Carbika**

*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Subirrigated (pe21-28)

**General Considerations:** Most areas are in cropland, but some are in pasture or range. This mapunit is moderately well suited for the most commonly grown crops. Wheat and grain sorghum are the major crops. The hazard for wind erosion is severe and water erosion is slight. Maintaining soil tilth and soil crusting are problems but they can be improved by adding organic matter. The high sodium content, pH, and soluble salts can limit the engineering uses of this mapunit.

**1555—Dillhut-Plev complex, 0 to 2 percent slopes**

**Mapunit Information:** Dillhut soils are located on the upper to mid part of the dunes. Dillwyn

soils are located on the lower part of the dune and in the interdunal areas. The Plev soils are located in the depressions between the dunes.

**Map Unit Composition**

Dillhut: 35 percent  
 Plev: 35 percent  
 Minor components: 30 percent

**Component Descriptions**

**Dillhut**

**MLRA:** 79 - Great Bend Sand Plains  
**Landform:** Dune on paleoterrace on river valley  
**Parent material:** Eolian deposits over alluvium  
**Slope:** 0 to 2 percent  
**Drainage class:** Moderately well drained  
**Slowest permeability:** Moderate (About 0.60 in/hr)  
**Available water capacity:** Moderate (About 6.0 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:** Sands (pe21-28)  
**Land capability (irrigated):** 3e  
**Land capability (nonirrigated):** 3e

**Typical Profile:**

A—0 to 4 inches; fine sand  
 AC—4 to 9 inches; fine sand  
 C1—9 to 18 inches; fine sand  
 C2—18 to 26 inches; fine sand  
 2Btb1—26 to 41 inches; fine sandy loam  
 2Btb2—41 to 55 inches; fine sandy loam  
 2BCb1—55 to 65 inches; fine sandy loam  
 2BCb2—65 to 70 inches; fine sandy loam  
 2Cg—70 to 80 inches; fine sandy loam

**Component note:** This soil was formerly mapped as Elsmere. Included with this soil are small areas with a fine sand surface texture.

**Plev**

**MLRA:** 79 - Great Bend Sand Plains  
**Landform:** Depression on paleoterrace on river valley, interdune on paleoterrace on river valley  
**Parent material:** Sandy eolian deposits over loamy alluvium  
**Slope:** 0 to 1 percent  
**Drainage class:** Poorly drained  
**Slowest permeability:** Moderate (About 0.60 in/hr)

*Available water capacity:* Low (About 3.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 6 to 6 inches  
*Runoff class:* Very low  
*Ecological site:* Subirrigated (pe21-28)  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

A1—0 to 4 inches; loamy fine sand  
 A2—4 to 12 inches; fine sand  
 Cg1—12 to 35 inches; fine sand  
 Cg2—35 to 46 inches; fine sand  
 2Btgb1—46 to 57 inches; fine sandy loam  
 2Btgb2—57 to 75 inches; fine sandy loam  
 2BCb—75 to 80 inches; loamy fine sand

*Component note:* This soil was formerly mapped as Plevna. Included with this soil are small areas with a fine sand surface texture.

### Minor Components

#### Dillwyn

*Composition:* About 20 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

#### Warnut

*Composition:* About 10 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in pasture or range. This mapunit is poorly suited for most commonly grown crops. The hazard for wind erosion is severe and water erosion is slight. The presence of water tables and sandy textures limits many of the engineering uses of this soil.

## 1556—Dillhut-Solvay complex, 0 to 3 percent slopes

*Mapunit Information:* Dillhut soils occur on upper dunes and Solvay soils occur in the lower interdunal areas.

### Map Unit Composition

Dillhut: 30 percent  
 Solvay: 30 percent  
 Minor components: 40 percent

## Component Descriptions

### Dillhut

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Eolian deposits over alluvium  
*Slope:* 0 to 3 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 6.0 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:* Sands (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

A—0 to 4 inches; fine sand  
 AC—4 to 9 inches; fine sand  
 C1—9 to 18 inches; fine sand  
 C2—18 to 26 inches; fine sand  
 2Btb1—26 to 41 inches; fine sandy loam  
 2Btb2—41 to 55 inches; fine sandy loam  
 2BCb1—55 to 65 inches; fine sandy loam  
 2BCb2—65 to 70 inches; fine sandy loam  
 2Cg—70 to 80 inches; fine sandy loam

*Component note:* This soil was formerly mapped as Elsmere. Included with this soil are small areas with a fine sand surface texture.

### Solvay

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Interdune on paleoterrace on river valley  
*Parent material:* Loamy eolian deposits over alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 9.2 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 24 to 48 inches  
*Runoff class:* Very low  
*Ecological site:* Subirrigated (pe21-28)  
*Land capability (nonirrigated):* 2e

**Typical Profile:**

A—0 to 5 inches; fine sandy loam  
 2Bt1—5 to 14 inches; fine sandy loam  
 2Bt2—14 to 23 inches; fine sandy loam  
 2Bt3—23 to 37 inches; fine sandy loam  
 2BC1—37 to 58 inches; fine sandy loam  
 2BC2—58 to 76 inches; loamy fine sand  
 2BC3—76 to 80 inches; loamy fine sand

**Component note:** This soil was formerly mapped as Carwile or Farnum. Included with this soil in mapping are small areas with a loamy fine sand surface texture.

**Minor Components****Dillwyn**

**Composition:** About 25 percent  
**Slope:** 0 to 2 percent  
**Drainage class:** Somewhat poorly drained  
**Ecological site:** Subirrigated (pe21-28)

**Carway**

**Composition:** About 15 percent  
**Slope:** 0 to 2 percent  
**Drainage class:** Somewhat poorly drained  
**Ecological site:** Subirrigated (pe21-28)

**General Considerations:** Most areas are in pasture or range. This mapunit is poorly suited for most commonly grown crops. The hazard for wind erosion is severe and water erosion is slight. The presence of water tables and sandy textures limits many of the engineering uses of this soil.

## 1725—Farnum and Funmar loams, 0 to 1 percent slopes

**Mapunit Information:** The Funmar and Farnum soils are interfingering upon the landscape.

### Map Unit Composition

Funmar: 40 percent  
 Farnum: 40 percent  
 Minor components: 20 percent

### Component Descriptions

**Funmar**

**MLRA:** 79 - Great Bend Sand Plains  
**Landform:** Paleoterrace on river valley  
**Parent material:** Loamy alluvium over alluvium  
**Slope:** 0 to 1 percent  
**Drainage class:** Moderately well drained  
**Slowest permeability:** Slow (About 0.06 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:** Very low

**Ecological site:** Loamy Upland (pe21-28)

**Land capability (irrigated):** 1

**Land capability (nonirrigated):** 2c

**Typical Profile:**

Ap—0 to 6 inches; loam  
 A—6 to 12 inches; loam  
 Bt1—12 to 17 inches; loam  
 Bt2—17 to 26 inches; clay loam  
 Bt3—26 to 32 inches; loam  
 2Ab—32 to 38 inches; silty clay loam  
 2Btb—38 to 54 inches; silty clay loam  
 2Btkb1—54 to 66 inches; silty clay loam  
 2Btkb2—66 to 80 inches; silty clay loam

**Component note:** This soil was formerly mapped as Farnum and Tabler. Included with this soil are small areas with a surface texture of fine sandy loam. A buried soil occurs below a depth of 32 inches and varies in thickness. The texture of the buried soil varies from sandy clay loam to silty clay and increases in sand content with depth.

**Farnum**

**MLRA:** 79 - Great Bend Sand Plains  
**Landform:** Paleoterrace on river valley  
**Parent material:** Alluvium  
**Slope:** 0 to 1 percent  
**Drainage class:** Well drained  
**Slowest permeability:** Moderate (About 0.60 in/hr)  
**Available water capacity:** High (About 10.7 inches)  
**Shrink-swell potential:** Moderate (About 4.5 LEP)  
**Flooding hazard:** None  
**Depth to seasonal water saturation:** More than 6 feet  
**Runoff class:** Very low  
**Ecological site:** Loamy Upland (pe21-28)  
**Land capability (irrigated):** 1  
**Land capability (nonirrigated):** 2c

**Typical Profile:**

Ap—0 to 5 inches; loam  
 A—5 to 15 inches; loam  
 Bt1—15 to 21 inches; loam  
 Bt2—21 to 34 inches; sandy clay loam  
 Bt3—34 to 48 inches; loam  
 Bt4—48 to 61 inches; clay loam  
 Bt5—61 to 73 inches; clay loam  
 Btk—73 to 80 inches; loam

*Component note:* Included with this soil are small areas with a fine sandy loam surface texture.

### Minor Components

#### Naron

*Composition:* About 20 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

#### Carway

*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

#### Carbika

*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in cropland, but some areas are in pasture or range. This mapunit is well suited for the most commonly grown crops. Wheat, grain sorghum, soybeans, and irrigated corn are the predominant crops grown. The hazard for wind and water erosion is slight. The potential for high shrink-swell may limit some of the engineering practices of this mapunit.

## 1726—Funmar and Farnum loams, 1 to 3 percent slopes

*Mapunit Information:* The Funmar and Farnum soils are interfingering upon the landscape.

### Map Unit Composition

Farnum: 40 percent  
 Funmar: 40 percent  
 Minor components: 20 percent

### Component Descriptions

#### Farnum

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.7 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 (pe21-28)

*Land capability (irrigated):* 1

*Land capability (nonirrigated):* 2c

#### Typical Profile:

Ap—0 to 5 inches; loam  
 A—5 to 15 inches; loam  
 Bt1—15 to 21 inches; loam  
 Bt2—21 to 34 inches; sandy clay loam  
 Bt3—34 to 48 inches; loam  
 Bt4—48 to 61 inches; clay loam  
 Bt5—61 to 73 inches; clay loam  
 Btk—73 to 80 inches; loam

*Component note:* Included with this soil are small areas with a fine sandy loam surface texture.

#### Funmar

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium over alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 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:* Loamy Upland (pe21-28)  
*Land capability (irrigated):* 1  
*Land capability (nonirrigated):* 2c

#### Typical Profile:

Ap—0 to 6 inches; loam  
 A—6 to 12 inches; loam  
 Bt1—12 to 17 inches; loam  
 Bt2—17 to 26 inches; clay loam  
 Bt3—26 to 32 inches; loam  
 2Ab—32 to 38 inches; silty clay loam  
 2Btb—38 to 54 inches; silty clay loam  
 2Btkb1—54 to 66 inches; silty clay loam  
 2Btkb2—66 to 80 inches; silty clay loam

*Component note:* This soil was formerly mapped as Farnum and Tabler. Included with this soil are small areas with a surface texture of fine sandy loam. A buried soil occurs below a depth of 32 inches and varies in thickness. The texture of the buried soil varies from

sandy clay loam to silty clay and increases in sand content with depth.

### Minor Components

#### Naron

*Composition:* About 20 percent  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

#### Carbika

*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Subirrigated (pe21-28)

#### Carway

*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in cropland, but some areas are in pasture or range. This mapunit is well suited for the most commonly grown crops. Wheat, grain sorghum, soybeans, and irrigated corn are the predominant crops grown. The hazard for wind and water erosion is slight. The potential for high shrink-swell may limit some of the engineering practices of this mapunit.

## 1985—Hayes fine sandy loam, 1 to 5 percent slopes

*Mapunit Information:* Hayes soils are usually located higher on the dune than the Attica soils.

### Map Unit Composition

Hayes: 60 percent  
 Minor components: 40 percent

### Component Descriptions

#### Hayes

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Loamy eolian deposits over clayey alluvium  
*Slope:* 1 to 5 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 8.1 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:* Sandy (pe21-28)

*Land capability (irrigated):* 3e

*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 8 inches; fine sandy loam  
 Bt1—8 to 14 inches; fine sandy loam  
 Bt2—14 to 23 inches; fine sandy loam  
 Bt3—23 to 34 inches; fine sandy loam  
 Bt4—34 to 42 inches; fine sandy loam  
 Ab—42 to 47 inches; fine sandy loam  
 2Btb1—47 to 56 inches; sandy clay loam  
 2Btb2—56 to 69 inches; silty clay  
 2Btb3—69 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Naron or Pratt. A buried soil exists below 40 inches. The buried soil varies in thickness and the texture ranges from sandy clay loam to silty clay. The texture of the buried soil generally increases in sand content with increasing depth. Included in this unit are small areas of slopes greater than 2 percent.

### Minor Components

#### Attica

*Composition:* About 25 percent  
*Slope:* 1 to 5 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

#### Saltcreek

*Composition:* About 15 percent  
*Slope:* 1 to 5 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

*General Considerations:* Most areas are used for cropland, but some areas are in pasture or range. This mapunit is moderately well suited for most commonly grown crops. Wheat, grain sorghum, and irrigated corn are the predominant crops. The hazard for wind erosion is moderate and water erosion is slight. The high shrink-swell potential may limit some of the engineering uses of the soil.

## 1986—Hayes-Solvay loamy fine sands, 0 to 5 percent slopes

*Mapunit Information:* Hayes soils occur on the mid to upper parts of the dunes. The Solvay

soils are in interdunal positions on the paleoterrace.

### Map Unit Composition

Hayes: 55 percent  
Solvay: 20 percent  
Minor components: 25 percent

### Component Descriptions

#### Hayes

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Loamy eolian deposits over clayey alluvium

*Slope:* 0 to 5 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* Moderate (About 7.8 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 (pe21-28)

*Land capability (irrigated):* 3e

*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 8 inches; loamy fine sand  
Bt1—8 to 14 inches; fine sandy loam  
Bt2—14 to 23 inches; fine sandy loam  
Bt3—23 to 34 inches; fine sandy loam  
Bt4—34 to 42 inches; fine sandy loam  
Ab—42 to 47 inches; fine sandy loam  
2Btb1—47 to 56 inches; sandy clay loam  
2Btb2—56 to 69 inches; silty clay  
2Btb3—69 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Naron or Pratt. A buried soil exists below 40 inches. The buried soil varies in thickness and the texture ranges from sandy clay loam to silty clay. The texture of the buried soil generally increases in sand content with increasing depth. Included in this unit are small areas of slopes greater than 2 percent.

#### Solvay

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Interdune on paleoterrace on river valley

*Parent material:* Loamy eolian deposits over 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 9.0 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 24 to 48 inches

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 2e

#### Typical Profile:

A—0 to 5 inches; loamy fine sand  
2Bt1—5 to 14 inches; fine sandy loam  
2Bt2—14 to 23 inches; fine sandy loam  
2Bt3—23 to 37 inches; fine sandy loam  
2BC1—37 to 58 inches; fine sandy loam  
2BC2—58 to 76 inches; loamy fine sand  
2BC3—76 to 80 inches; loamy fine sand

*Component note:* This soil was formerly mapped as Carwile and Farnum. Included with this soil in mapping are small areas with a loamy fine sand surface texture.

### Minor Components

#### Carway

*Composition:* About 15 percent

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Subirrigated (pe21-28)

#### Farnum

*Composition:* About 10 percent

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe21-28)

*General Considerations:* Most areas are used for cropland, but some areas are in pasture or range. This mapunit is somewhat poorly suited for most commonly grown crops. Wheat and grain sorghum are the predominant crops grown. The hazard for wind erosion is severe and water erosion is slight. Wind erosion can be controlled by plant residue management, conservation tillage, and tall grass barriers. The high water tables, high shrink-swell potential, and sandy textures will limit most engineering uses of this mapunit.

## 1987—Hayes-Turon complex, 0 to 5 percent slopes

*Mapunit Information:* Hayes soils occur on the mid to upper parts of the dunes. The Turon soils usually occur higher on the dune. Naron soils occur on the flatter parts of the dune.

### Map Unit Composition

Hayes: 40 percent  
Turon: 35 percent  
Minor components: 25 percent

### Component Descriptions

#### Hayes

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Loamy eolian deposits over clayey alluvium  
*Slope:* 0 to 5 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 7.8 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 (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 8 inches; loamy fine sand  
Bt1—8 to 14 inches; fine sandy loam  
Bt2—14 to 23 inches; fine sandy loam  
Bt3—23 to 34 inches; fine sandy loam  
Bt4—34 to 42 inches; fine sandy loam  
Ab—42 to 47 inches; fine sandy loam  
2Btb1—47 to 56 inches; sandy clay loam  
2Btb2—56 to 69 inches; silty clay  
2Btb3—69 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Naron or Pratt. A buried soil exists below 40 inches. The buried soil varies in thickness and the texture ranges from sandy clay loam to silty clay. The texture of the buried soil generally increases in sand content with increasing depth. Included in this unit are small areas of slopes greater than 5 percent.

#### Turon

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits over alluvium  
*Slope:* 0 to 5 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Very slow (About 0.00 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:* Low  
*Ecological site:* Sands (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 8 inches; fine sand  
Bt—8 to 28 inches; loamy fine sand  
E&Bt—28 to 40 inches; stratified loamy fine sand to fine sandy loam  
2Btb1—40 to 58 inches; silty clay  
2Btb2—58 to 75 inches; silty clay  
2Btb3—75 to 80 inches; silty clay

*Component note:* This soil was formerly mapped as Pratt. A buried soil occurs below a depth of 40 inches. The buried soil varies in thickness and in texture. The texture varies from sandy clay loam to silty clay. The texture of the buried soil generally increases in sand content with increasing depth.

### Minor Components

#### Naron

*Composition:* About 15 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

#### Solvay

*Composition:* About 10 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

#### Carway

*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are used for cropland, but some areas are in pasture or range. This mapunit is somewhat poorly suited for most commonly grown crops.

Wheat and grain sorghum are the predominant crops grown. The hazard for wind erosion is severe and water erosion is slight. Wind erosion can be controlled by plant residue management, conservation tillage, and tall grass barriers. The high shrink-swell potential, and sandy textures will limit most engineering uses of this mapunit.

## 1988—Hayes loamy fine sand, 5 to 10 percent slopes

*Mapunit Information:* Hayes soils are usually located higher on the dune than the Attica soils.

### Map Unit Composition

Hayes: 70 percent  
Minor components: 30 percent

### Component Descriptions

#### Hayes

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Loamy eolian deposits over clayey alluvium

*Slope:* 5 to 10 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* Moderate (About 8.1 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:* Sandy (pe21-28)

*Land capability (irrigated):* 3e

*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 8 inches; fine sandy loam  
Bt1—8 to 14 inches; fine sandy loam  
Bt2—14 to 23 inches; fine sandy loam  
Bt3—23 to 34 inches; fine sandy loam  
Bt4—34 to 42 inches; fine sandy loam  
Ab—42 to 47 inches; fine sandy loam  
2Btb1—47 to 56 inches; sandy clay loam  
2Btb2—56 to 69 inches; silty clay  
2Btb3—69 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Naron or Pratt. A buried soil exists below 40 inches. The buried soil varies in thickness and the texture ranges from sandy

clay loam to silty clay. The texture of the buried soil generally increases in sand content with increasing depth. Included in this unit are small areas of slopes less than 5 percent.

### Minor Components

#### Pratt

*Composition:* About 30 percent

*Slope:* 5 to 10 percent

*Drainage class:* Well drained

*Ecological site:* Sands (pe21-28)

*General Considerations:* Most areas are used for pasture or range. The hazard for wind erosion is and and water erosion is moderate. The high shrink-swell potential and slope may limit some of the engineering uses of the soil.

## 2110—Intermittent Water (aquolls)

### Map Unit Composition

Aquolls: 100 percent

### Component Descriptions

#### Aquolls

*MLRA:* 79 - Great Bend Sand Plains, 79 - Great Bend Sand Plains

*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

*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.



## 2381—Kanza-Ninnescah sandy loams, 0 to 2 percent slopes, commonly flooded

*Mapunit Information:* Kanza and Ninnescah soils are interfingering upon the floodplain.

### Map Unit Composition

Kanza: 50 percent  
Ninnescah: 50 percent

### Component Descriptions

#### Kanza

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Low (About 5.7 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 36 inches

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 5w

#### Typical Profile:

A1—0 to 4 inches; sandy loam

A2—4 to 9 inches; loamy fine sand

AC—9 to 17 inches; loamy fine sand

C1—17 to 33 inches; loamy fine sand

C2—33 to 80 inches; sand

*Component note:* This soil was formerly mapped as Plevna or wet alluvial land.

#### Ninnescah

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Loamy alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Slowest permeability:* Moderately rapid (About 1.98 in/hr)

*Available water capacity:* Moderate (About 7.4 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 24 to 24 inches

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 5w

#### Typical Profile:

Ak1—0 to 6 inches; sandy loam

Ak2—6 to 14 inches; sandy loam

Ak3—14 to 19 inches; sandy loam

Bkg1—19 to 30 inches; sandy loam

Bkg2—30 to 37 inches; sandy loam

Cg1—37 to 52 inches; sandy loam

Cg2—52 to 80 inches; loamy sand

*Component note:* This series was formerly mapped as Plevna. In some places there are slope inclusions of greater than 1 percent slopes.

*General Considerations:* Most areas are in pasture or range. This map unit is poorly suited for the most commonly grown crops. The hazard for wind and water erosion is slight. The water tables, flooding, and depth to sand limit most engineering uses for this mapunit.

## 2556—Langdon fine sand, 0 to 15 percent slopes

*Mapunit Information:* Langdon soils occur on mid to upper parts of the dunes. Tivin soils occur on the upper parts of the dunes. Turon soils occur on the lower part of the dune. Turon soils have a paleosol below 40 inches.

### Map Unit Composition

Langdon: 50 percent  
Minor components: 50 percent

### Component Descriptions

#### Langdon

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 0 to 15 percent

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* Rapid (About 6.00 in/hr)

*Available water capacity:* Low (About 3.2 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Ponding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Choppy Sands (pe21-28)

*Land capability (nonirrigated):* 6e

*Typical Profile:*

A—0 to 8 inches; fine sand

E&Bt—8 to 47 inches; stratified sand to loamy sand

C—47 to 64 inches; fine sand

E&Btb—64 to 80 inches; stratified sand to loamy sand

*Component note:* This soil was formerly mapped as Tivoli or Pratt. Typically, this map unit is not cropped, although, in some places the soils occurring on the lower dunes are cultivated.

**Minor Components**

**Turon**

*Composition:* About 25 percent

*Slope:* 0 to 10 percent

*Drainage class:* Well drained

*Ecological site:* Sands (pe21-28)

**Tivin**

*Composition:* About 25 percent

*Slope:* 1 to 15 percent

*Drainage class:* Somewhat excessively drained

*Ecological site:* Choppy Sands (pe21-28)

**Carway**

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Subirrigated (pe21-28)

**Warnut**

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in pasture or range. This mapunit is poorly suited for the most commonly grown crops. The hazard for wind erosion is severe and water erosion is moderate. The sandy textures limit most engineering practices.

**2958—Ninnescah fine sandy loam, 0 to 1 percent slopes, occasionally flooded**

*Mapunit Information:* Kanza and Ninnescah soils are interfingering upon the floodplain.

**Map Unit Composition**

Ninnescah: 85 percent

Minor components: 15 percent

**Component Descriptions**

**Ninnescah**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Loamy alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest permeability:* Moderately rapid (About 1.98 in/hr)

*Available water capacity:* Moderate (About 7.4 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 24 to 24 inches

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 5w

*Typical Profile:*

Ak1—0 to 6 inches; fine sandy loam

Ak2—6 to 14 inches; sandy loam

Ak3—14 to 19 inches; sandy loam

Bkg1—19 to 30 inches; sandy loam

Bkg2—30 to 37 inches; sandy loam

Cg1—37 to 52 inches; sandy loam

Cg2—52 to 80 inches; loamy sand

*Component note:* This soil was formerly mapped as Plevna.

**Minor Components**

**Kanza**

*Composition:* About 15 percent

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in pasture or range. This map unit is poorly suited for the most commonly grown crops. The hazard for wind and water erosion is slight. The water tables, flooding, and depth to sand limit most engineering uses for this mapunit.

**3053—Ost loam, 1 to 3 percent slopes**

*Mapunit Information:* Ost soils occur slightly higher on the paleoterrace than Clark soils.

## Map Unit Composition

Ost: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Ost

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 10.0 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 (pe24-32)  
*Land capability (nonirrigated):* 2c

#### Typical Profile:

Ap—0 to 8 inches; loam  
Bt1—8 to 12 inches; loam  
Bt2—12 to 18 inches; loam  
Bk1—18 to 23 inches; clay loam  
Bk2—23 to 38 inches; clay loam  
BCk—38 to 54 inches; loam  
C—54 to 80 inches; loam

*Component note:* Included in mapping are small areas with a fine sandy loam surface texture. Also included are small areas that have slope of less than 1 percent.

### Minor Components

#### Shellabarger

*Composition:* About 15 percent  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

### Unnamed Wet Soils

#### Clark

*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Ecological site:* Limy Upland (pe21-28)

*General Considerations:* Most areas are used as cropland. This mapunit is well suited to all commonly grown crops. Wheat, grain sorghum, and soybeans are the predominant

crops. The hazard of wind erosion is moderate and water erosion is slight. This mapunit is well suited for most engineering practices.

## 3180—Pratt fine sand, 5 to 10 percent slopes

### Map Unit Composition

Pratt: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Pratt

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 5 to 10 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Moderate (About 6.3 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:* Sands (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 8 inches; fine sand  
Bt—8 to 24 inches; loamy fine sand  
E&Bt—24 to 64 inches; stratified fine sand to loamy fine sand  
C—64 to 80 inches; fine sand

*Component note:* Included with this soil in mapping are some areas with a loamy fine sand surface texture. Also included are small areas with slopes of less than 5 percent.

### Minor Components

#### Attica

*Composition:* About 15 percent  
*Slope:* 5 to 10 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

*General Considerations:* Most areas are in pasture or range, but some are in cropland. This mapunit is poorly suited for the most

commonly grown crops. The hazard for wind erosion is severe and water erosion is moderate. This mapunit is poorly suited for most engineering practices due to the sandy textures.

### **3181—Pratt-Turon fine sands, 1 to 5 percent slopes**

*Mapunit Information:* Pratt and Turon soils are on similar positions on dunes. Turon soils have a paleosol below 40 inches.

#### **Map Unit Composition**

Pratt: 45 percent  
Turon: 30 percent  
Minor components: 25 percent

#### **Component Descriptions**

##### **Pratt**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 1 to 5 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Moderate (About 6.3 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:* Sands (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 3e

##### *Typical Profile:*

Ap—0 to 8 inches; fine sand  
Bt—8 to 24 inches; loamy fine sand  
E&Bt—24 to 64 inches; stratified fine sand to loamy fine sand  
C—64 to 80 inches; fine sand

*Component note:* Included with this soil are small areas with a loamy fine sand surface texture.

##### **Turon**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits over alluvium  
*Slope:* 1 to 5 percent

*Drainage class:* Well drained  
*Slowest permeability:* Very slow (About 0.00 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:* Low  
*Ecological site:* Sands (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 3e

##### *Typical Profile:*

Ap—0 to 8 inches; fine sand  
Bt—8 to 28 inches; loamy fine sand  
E&Bt—28 to 40 inches; stratified loamy fine sand to fine sandy loam  
2Btb1—40 to 58 inches; silty clay  
2Btb2—58 to 75 inches; silty clay  
2Btb3—75 to 80 inches; silty clay

*Component note:* This soil was formerly mapped as Pratt. A buried soil occurs below a depth of 40 inches. The buried soil varies in thickness and in texture. The texture varies from sandy clay loam to silty clay. The texture of the buried soil generally increases in sand content with increasing depth.

#### **Minor Components**

##### **Hayes**

*Composition:* About 25 percent  
*Slope:* 1 to 5 percent  
*Drainage class:* Well drained  
*Ecological site:* Sandy (pe21-28)

##### **Carway**

*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

##### **Warnut**

*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in cropland, but some are in pasture and range. Some areas are also in the Conservation Reserve Program. This mapunit is somewhat poorly suited for the most commonly grown crops. Wheat, grain sorghum, and irrigated corn are the predominant crops. The hazard for wind erosion is severe and water erosion is slight. Wind erosion can be controlled by plant residue management, conservation tillage,

and tall grass barriers. This mapunit is moderately well suited for most engineering practices.

### **3511—Saltcreek and Naron fine sandy loams, 0 to 1 percent slopes**

*Mapunit Information:* Saltcreek and Naron soils are interfingering upon the landscape. Both soils occur in similar positions.

#### **Map Unit Composition**

Saltcreek: 70 percent  
Naron: 30 percent

#### **Component Descriptions**

##### **Saltcreek**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Loamy eolian deposits over alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* High (About 9.0 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Sandy (pe21-28)

*Land capability (irrigated):* 1

*Land capability (nonirrigated):* 3e

##### *Typical Profile:*

Ap—0 to 5 inches; fine sandy loam  
Bt1—5 to 10 inches; sandy clay loam  
Bt2—10 to 26 inches; sandy clay loam  
Bt3—26 to 39 inches; fine sandy loam  
2Btb—39 to 56 inches; silty clay  
2Btkb1—56 to 66 inches; silty clay loam  
2Btkb2—66 to 80 inches; silty clay loam

*Component note:* This soil was formerly mapped as Naron. A buried soil occurs from 25 to 60 inches. The buried soil varies in thickness and in texture. The texture ranges from sandy clay loam to silty clay generally increases in sand content with increasing depth. In some areas the buried soil has a higher content of sand.

##### **Naron**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*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:* High (About 9.1 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:* Sandy (pe21-28)

*Land capability (irrigated):* 2e

*Land capability (nonirrigated):* 2e

##### *Typical Profile:*

Ap—0 to 7 inches; fine sandy loam  
A—7 to 19 inches; fine sandy loam  
Bt1—19 to 34 inches; loam  
Bt2—34 to 41 inches; sandy clay loam  
Ck—41 to 61 inches; stratified loam to loamy fine sand to fine sandy loam  
C—61 to 80 inches; coarse sand

*Component note:* These soils are very deep, well drained, moderately permeable soils formed in loamy eolian deposits.

*General Considerations:* Most areas are in cropland, but some areas are in pasture or range. This mapunit is well suited for most commonly grown crops. Wheat, grain sorghum, soybeans, and irrigated corn. The hazard for wind and water erosion is slight. The depth to sand and potential for high shrink-swell may limit some engineering practices for this mapunit.

### **3512—Saltcreek and Naron fine sandy loams, 1 to 3 percent slopes**

*Mapunit Information:* Saltcreek and Naron soils are interfingering upon the landscape. Both soils occur in similar positions.

#### **Map Unit Composition**

Saltcreek: 50 percent  
Naron: 50 percent  
Minor components: 10 percent

## Component Descriptions

### Saltcreek

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Loamy eolian deposits over alluvium

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* High (About 9.0 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Sandy (pe21-28)

*Land capability (irrigated):* 1

*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 5 inches; fine sandy loam  
Bt1—5 to 10 inches; sandy clay loam  
Bt2—10 to 26 inches; sandy clay loam  
Bt3—26 to 39 inches; fine sandy loam  
2Btb—39 to 56 inches; silty clay  
2Btkb1—56 to 66 inches; silty clay loam  
2Btkb2—66 to 80 inches; silty clay loam

*Component note:* This series was formerly mapped as Naron. A buried soil varies laterally in thickness and in texture. The texture of the buried soil varies from sandy clay loam to silty clay and generally increases in sand content with depth. Some areas contain a higher content of sand.

### Naron

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*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:* High (About 9.7 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 (pe21-28)

*Land capability (irrigated):* 3e

*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 8 inches; fine sandy loam  
A—8 to 14 inches; fine sandy loam  
Bt1—14 to 28 inches; sandy clay loam  
Bt2—28 to 39 inches; sandy clay loam  
Bt3—39 to 55 inches; sandy clay loam  
BC—55 to 66 inches; fine sandy loam  
C—66 to 80 inches; loamy fine sand

## Minor Components

### Funmar

*Composition:* About 10 percent

*Slope:* 0 to 1 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe21-28)

### Carway

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Subirrigated (pe21-28)

### Carbika

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Ecological site:* Subirrigated (pe21-28)

### Taver

*Slope:* 0 to 1 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe21-28)

*General Considerations:* Most areas are in cropland, but some areas are in pasture or range. This mapunit is well suited for most commonly grown crops. Wheat, grain sorghum, soybeans, and irrigated corn. The hazard for wind and water erosion is slight. The depth to sand and potential for high shrink-swell may limit some engineering practices for this mapunit.

## 3520—Saxman loamy sand, 0 to 1 percent slopes

### Map Unit Composition

Saxman: 85 percent

Minor components: 15 percent

## Component Descriptions

### Saxman

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Sandy alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Moderately well drained

*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Low (About 4.4 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Rare  
*Depth to seasonal water saturation:* About 24 to 36 inches  
*Runoff class:* Very low  
*Ecological site:* Sandy Lowland (pe21-28)  
*Land capability (irrigated):* 2e  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap1—0 to 4 inches; loamy sand  
 Ap2—4 to 8 inches; loamy sand  
 A—8 to 13 inches; loamy sand  
 AC—13 to 22 inches; loamy sand  
 C1—22 to 30 inches; sand  
 C2—30 to 37 inches; sand  
 C3—37 to 48 inches; sand  
 C4—48 to 54 inches; fine sand  
 C5—54 to 80 inches; stratified gravelly coarse sand

*Component note:* This series was formerly mapped as Canadian and Wann. Included with this soil in mapping are small places the surface texture may be loamy fine sand.

**Minor Components**

**Willowbrook**

*Composition:* About 15 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are used for pasture or range, some areas are used for hay production. This map unit is poorly suited for most commonly grown crops. The hazard for water erosion is slight and wind erosion is severe. Depth to sand and water tables can limit most engineering uses for this map unit. Most areas are used for pasture or range, some areas are used for hay production. This map unit is poorly suited for most commonly grown crops. The hazard for water erosion is slight and wind erosion is severe. Depth to sand and water tables can limit most engineering uses for this map unit.

**3540—Solvay loamy fine sand, 0 to 2 percent slopes**

**Map Unit Composition**

Solvay: 90 percent  
 Minor components: 10 percent

**Component Descriptions**

**Solvay**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Interdune on paleoterrace on river valley

*Parent material:* Loamy eolian deposits over 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 9.0 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 24 to 48 inches

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 2e

*Typical Profile:*

A—0 to 5 inches; loamy fine sand  
 2Bt1—5 to 14 inches; fine sandy loam  
 2Bt2—14 to 23 inches; fine sandy loam  
 2Bt3—23 to 37 inches; fine sandy loam  
 2BC1—37 to 58 inches; fine sandy loam  
 2BC2—58 to 76 inches; loamy fine sand  
 2BC3—76 to 80 inches; loamy fine sand

*Component note:* This soil was formerly mapped as Carwile and Farnum. Included with this soil in mapping are small areas with a fine sandy loam surface texture. These soils occur in depressions on the floodplain.

**Minor Components**

**Hayes**

*Composition:* About 10 percent

*Slope:* 0 to 2 percent

*Drainage class:* Well drained

*Ecological site:* Sandy (pe21-28)

**Carway***Slope:* 0 to 1 percent*Drainage class:* Somewhat poorly drained*Ecological site:* Subirrigated (pe21-28)**Carbika***Slope:* 0 to 1 percent*Drainage class:* Poorly drained*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in cropland, but some areas are used for pasture and range. Many areas are in the Conservation Reserve Program. This mapunit is somewhat poorly suited for the most commonly grown crops. Wheat, grain sorghum and irrigated corn are the predominant crops. The hazard for wind erosion is severe and water erosion is slight. Conservation tillage, residue management, and tall grass barriers are ways to control wind erosion. The depth to water tables will limit many engineering practices.

### 3639—Taver loam, 0 to 1 percent slopes

#### Map Unit Composition

Taver: 90 percent

Minor components: 10 percent

#### Component Descriptions

**Taver***MLRA:* 79 - Great Bend Sand Plains*Landform:* Paleoterrace on river valley*Parent material:* Clayey alluvium*Slope:* 0 to 1 percent*Drainage class:* Moderately well drained*Slowest permeability:* Very slow (About 0.00 in/hr)*Available water capacity:* High (About 9.4 inches)*Shrink-swell potential:* High (About 7.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Very low*Ecological site:* Clay Upland (pe21-28)*Land capability (nonirrigated):* 2s*Typical Profile:*

Ap—0 to 7 inches; loam

2Bt1—7 to 17 inches; silty clay loam

2Bt2—17 to 33 inches; silty clay

2Btk1—33 to 53 inches; silty clay loam

2Btk2—53 to 64 inches; clay loam

3Bt—64 to 80 inches; sandy clay loam

*Component note:* This series was formerly mapped as Tabler.**Minor Components****Saltcreek***Composition:* About 10 percent*Slope:* 0 to 1 percent*Drainage class:* Well drained*Ecological site:* Sandy (pe21-28)**Carbika***Slope:* 0 to 1 percent*Drainage class:* Poorly drained*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are used for cropland, but some areas are in pasture or range. This mapunit is well suited for the most commonly grown crops such as wheat, grain sorghum, soybeans, and irrigated corn. The hazard for wind and water erosion is slight. This mapunit is moderately well suited for most engineering practices. The potential for high shrink-swell may limit some practices.

### 3640—Tivin fine sand, 10 to 30 percent slopes

#### Map Unit Composition

Tivin: 95 percent

Minor components: 5 percent

#### Component Descriptions

**Tivin***MLRA:* 79 - Great Bend Sand Plains*Landform:* Dune on paleoterrace on river valley*Parent material:* Sandy eolian deposits*Slope:* 10 to 30 percent*Drainage class:* Somewhat excessively drained*Slowest permeability:* Rapid (About 5.95 in/hr)*Available water capacity:* Low (About 3.2 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Ponding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Medium*Ecological site:* Choppy Sands (pe21-28)



*Land capability (nonirrigated):* 6e

*Typical Profile:*

A—0 to 7 inches; fine sand  
AC—7 to 18 inches; fine sand  
C—18 to 80 inches; fine sand

*Component note:* This series was formerly mapped as Tivoli.

**Minor Components**

**Langdon**

*Composition:* About 5 percent  
*Slope:* 10 to 30 percent  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Choppy Sands (pe21-28)

**Plev**

*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in pasture or range. This mapunit is poorly suited for the most commonly grown crops. The hazard for wind erosion is severe and water erosion is moderate. The sandy textures will limit most engineering practices.

**3641—Tivin-Dillhut fine sands, 0 to 15 percent slopes**

*Mapunit Information:* Tivin soils occur on high dunes, and Dillhut soils occur on low relief dunes.

**Map Unit Composition**

Tivin: 45 percent  
Dillhut: 40 percent  
Minor components: 15 percent

**Component Descriptions**

**Tivin**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 1 to 15 percent  
*Drainage class:* Somewhat excessively drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Low (About 3.2 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Ponding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Choppy Sands (pe21-28)

*Land capability (nonirrigated):* 6e

*Typical Profile:*

A—0 to 7 inches; fine sand  
AC—7 to 18 inches; fine sand  
C—18 to 80 inches; fine sand

*Component note:* This series was formerly mapped as Tivoli.

**Dillhut**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Eolian deposits over alluvium  
*Slope:* 0 to 7 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 6.0 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:* Sands (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

A—0 to 4 inches; fine sand  
AC—4 to 9 inches; fine sand  
C1—9 to 18 inches; fine sand  
C2—18 to 26 inches; fine sand  
2Btb1—26 to 41 inches; fine sandy loam  
2Btb2—41 to 55 inches; fine sandy loam  
2BCb1—55 to 65 inches; fine sandy loam  
2BCb2—65 to 70 inches; fine sandy loam  
2Cg—70 to 80 inches; fine sandy loam

*Component note:* This series was formerly mapped as Elsmere. In some places the surface texture may be fine sand.

**Minor Components**

**Solvay**

*Composition:* About 15 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

**Carway**

*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Subirrigated (pe21-28)

**Warnut**

*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Subirrigated (pe21-28)

**Plev**

*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are in pasture or range. This mapunit is poorly suited for most commonly grown crops. The hazard for wind erosion is severe and water erosion is slight. This mapunit is poorly suited for most engineering practices.

### **3644—Turon-Carway complex, 0 to 5 percent slopes**

*Mapunit Information:* Turon soils occur on the mid to upper parts of the dunes. The Solvay soils are in interdunal positions on the paleoterrace. The Carway soils are on interdunes and also in depressional areas on the paleoterrace.

### **Map Unit Composition**

Turon: 65 percent  
 Carway: 20 percent  
 Minor components: 15 percent

### **Component Descriptions**

**Turon**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits over alluvium  
*Slope:* 0 to 5 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Very slow (About 0.00 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 (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 8 inches; fine sand  
 Bt—8 to 28 inches; loamy fine sand  
 E&Bt—28 to 40 inches; stratified loamy fine sand to fine sandy loam  
 2Btb1—40 to 58 inches; silty clay  
 2Btb2—58 to 75 inches; silty clay  
 2Btb3—75 to 80 inches; silty clay

*Component note:* This soil was formerly mapped as Pratt. A buried soil occurs below a depth of 40 inches. The buried soil varies in thickness and in texture. The texture varies from sandy clay loam to silty clay. The texture of the buried soil generally increases in sand content with increasing depth.

**Carway**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Interdune on depression on paleoterrace on river valley  
*Parent material:* Loamy eolian deposits over alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Moderate (About 8.6 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Ponding hazard:* Frequent  
*Depth to seasonal water saturation:* About 0 to 0 inches  
*Runoff class:* Very low  
*Ecological site:* Subirrigated (pe21-28)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 7 inches; loamy fine sand  
 Bt1—7 to 10 inches; sandy clay loam  
 Bt2—10 to 15 inches; sandy clay loam  
 Bt3—15 to 22 inches; fine sandy loam  
 Bt4—22 to 35 inches; fine sandy loam  
 2Btb1—35 to 40 inches; clay loam  
 2Btb2—40 to 54 inches; clay loam  
 2Btb3—54 to 63 inches; clay loam  
 2Btb4—63 to 72 inches; clay loam  
 2Btkb—72 to 80 inches; clay loam

*Component note:* This soil was formerly mapped as Carwile. Included with this soil in mapping are small areas with a fine sandy loam surface texture.

**Minor Components****Solvay**

*Composition:* About 15 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained

*Ecological site:* Subirrigated (pe21-28)

*General Considerations:* Most areas are used for cropland, but some areas are in pasture or range. This mapunit is somewhat poorly suited for most commonly grown crops. Wheat and grain sorghum are the predominant crops grown. The hazard for wind erosion is severe and water erosion is slight. Wind erosion can be controlled by plant residue management, conservation tillage, and tall grass barriers. The high water tables, high shrink-swell potential, and sandy textures will limit most engineering uses of this mapunit.

## 3926—Water

### An—Albion sandy loam, 1 to 4 percent slopes

#### Map Unit Composition

Albion: 100 percent

#### Component Descriptions

##### Albion

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 1 to 4 percent

*Drainage class:* Well drained

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

*Available water capacity:* Moderate (About 6.1 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:* Sandy (pe21-28)

*Land capability (nonirrigated):* 3e

##### *Typical Profile:*

H1—0 to 10 inches; sandy loam

H2—10 to 20 inches; sandy loam

H3—20 to 30 inches; coarse sandy loam

y—30 to 60 inches; gravelly coarse sand

### At—Attica fine sandy loam, 1 to 4 percent slopes

#### Map Unit Composition

Attica: 100 percent

#### Component Descriptions

##### Attica

*MLRA:* 79 - Great Bend Sand Plains

*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 7.9 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 (pe21-28)

*Land capability (nonirrigated):* 2e

##### *Typical Profile:*

H1—0 to 10 inches; fine sandy loam

H2—10 to 21 inches; fine sandy loam

H3—21 to 60 inches; fine sandy loam

#### Minor Components

##### Carwile

##### Unnamed Wet Soils

*Phase:* Sandy, Depression

### Ba—Blanket silt loam, 0 to 1 percent slopes

#### Map Unit Composition

Blanket: 100 percent

#### Component Descriptions

##### Blanket

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley  
*Parent material:* Clayey alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 9.2 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:* Loamy Upland (pe21-28)  
*Land capability (nonirrigated):* 2c

*Typical Profile:*  
 H1—0 to 10 inches; silt loam  
 H2—10 to 52 inches; silty clay  
 H3—52 to 60 inches; silty clay loam

**Minor Components**  
**Unnamed Wet Soils**  
*Phase:* Clayey, Depression

## **BIG—Big Salt Marsh, Little Salt Marsh, and Associated Low Areas**

### **Ca—Carwile fine sandy loam, 0 to 1 percent slopes**

#### **Map Unit Composition**

Carwile: 100 percent

#### **Component Descriptions**

**Carwile**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Depression on paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 9.4 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None  
*Ponding hazard:* Frequent  
*Depth to seasonal water saturation:* About 0 to 0 inches  
*Runoff class:* Negligible  
*Ecological site:* Sandy (pe21-28)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*  
 H1—0 to 10 inches; fine sandy loam  
 H2—10 to 18 inches; sandy clay loam  
 H3—18 to 46 inches; clay  
 H4—46 to 60 inches; clay

**Minor Components**  
**Unnamed Wet Soils**  
*Phase:* Loamy, Depression

### **Cw—Carwile complex, 0 to 1 percent slopes**

#### **Map Unit Composition**

Carwile: 100 percent

#### **Component Descriptions**

**Carwile**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Depression on paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 9.4 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Ponding hazard:* Frequent  
*Depth to seasonal water saturation:* About 0 to 0 inches  
*Runoff class:* Negligible  
*Ecological site:* Sandy (pe21-28)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*  
 H1—0 to 7 inches; fine sandy loam  
 H2—7 to 14 inches; sandy clay loam  
 H3—14 to 38 inches; sandy clay  
 H4—38 to 60 inches; sandy clay loam

**Minor Components****Unnamed Wet Soils***Phase:* Loamy, Depression**Cx—Clark loam, 1 to 3 percent slopes****Map Unit Composition**

Clark: 100 percent

**Component Descriptions****Clark***MLRA:* 79 - Great Bend Sand Plains*Landform:* Paleoterrace on river valley*Parent material:* Loamy alluvium*Slope:* 1 to 3 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 (pe21-28)*Land capability (nonirrigated):* 3e*Typical Profile:*

H1—0 to 8 inches; loam

H2—8 to 60 inches; loam

*Landform:* Interdune on paleoterrace on river

valley, dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits*Slope:* 0 to 2 percent*Drainage class:* Somewhat poorly drained*Slowest permeability:* Rapid (About 5.95 in/hr)*Available water capacity:* Low (About 4.9 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* About 12 to 36 inches*Runoff class:* Negligible*Ecological site:* Subirrigated (pe21-28)*Land capability (nonirrigated):* 4w*Typical Profile:*

H1—0 to 8 inches; loamy fine sand

H2—8 to 60 inches; fine sand

**Plevna***MLRA:* 79 - Great Bend Sand Plains*Landform:* Flood plain on river valley*Parent material:* Alluvium*Slope:* 0 to 1 percent*Drainage class:* Poorly drained*Slowest permeability:* Moderately rapid (About 2.00 in/hr)*Available water capacity:* Moderate (About 6.7 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* Frequent*Depth to seasonal water saturation:* About 0 to 24 inches*Runoff class:* Negligible*Ecological site:* Subirrigated (pe21-28)*Land capability (nonirrigated):* 5w*Typical Profile:*

H1—0 to 12 inches; fine sandy loam

H2—12 to 38 inches; fine sandy loam

H3—38 to 60 inches; fine sand

**Dp—Dillwyn-Plevna complex, 0 to 5 percent slopes****Map Unit Composition**

Dillwyn: 65 percent

Plevna: 35 percent

**Component Descriptions****Dillwyn***MLRA:* 79 - Great Bend Sand Plains**Minor Components****Unnamed Wet Soils***Phase:* Sandy, Depression**Dt—Dillwyn-Tivoli loamy fine sands, 0 to 15 percent slopes****Map Unit Composition**

Dillwyn: 65 percent

Tivoli: 35 percent

## Component Descriptions

### Dillwyn

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Interdune on paleoterrace on river valley, dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Low (About 4.9 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 12 to 36 inches

*Runoff class:* Negligible

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 4w

#### Typical Profile:

H1—0 to 8 inches; loamy fine sand

H2—8 to 60 inches; fine sand

### Tivoli

*MLRA:* 79 - Great Bend Sand Plains

*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 5.95 in/hr)

*Available water capacity:* Low (About 3.3 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 (pe21-28)

*Land capability (nonirrigated):* 7e

#### Typical Profile:

H1—0 to 10 inches; loamy fine sand

H2—10 to 60 inches; fine sand

## Minor Components

### Carwile

### Plevna

### Unnamed Wet Soils

*Phase:* Sandy, Depression

## Fa—Farnum fine sandy loam, 0 to 1 percent slopes

## Map Unit Composition

Farnum: 100 percent

## Component Descriptions

### Farnum

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 9.7 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:* Sandy (pe21-28)

*Land capability (irrigated):* 1

*Land capability (nonirrigated):* 2e

#### Typical Profile:

H1—0 to 14 inches; fine sandy loam

H2—14 to 22 inches; loam

H3—22 to 46 inches; clay loam

H4—46 to 60 inches; loam

## Minor Components

### Carwile

### Unnamed Wet Soils

*Phase:* Loamy, Depression

## Fr—Farnum loam, 0 to 2 percent slopes

## Map Unit Composition

Farnum: 100 percent

### Component Descriptions

#### Farnum

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 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:* Negligible

*Ecological site:* Loamy Upland (pe21-28)

*Land capability (irrigated):* 1

*Land capability (nonirrigated):* 2c

#### Typical Profile:

H1—0 to 9 inches; loam

H2—9 to 22 inches; loam

H3—22 to 46 inches; clay loam

H4—46 to 60 inches; clay loam

#### Minor Components

Carwile

### GRP—Gravel Pits

### INT—Aquolls

*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.

### Kg—Kingman silty clay loam, occasionally flooded

#### Map Unit Composition

Kingman: 100 percent

### Component Descriptions

#### Kingman

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

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

*Available water capacity:* High (About 11.2 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 0 to 24 inches

*Runoff class:* Negligible

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 5w

#### Typical Profile:

H1—0 to 10 inches; silty clay loam

H2—10 to 50 inches; silty clay loam

H3—50 to 60 inches; sandy loam

### M-W—Miscellaneous Water

### Na—Naron fine sandy loam, 0 to 3 percent slopes

#### Map Unit Composition

Naron: 100 percent

### Component Descriptions

#### Naron

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Loamy eolian deposits

*Slope:* 0 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 9.4 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 (pe21-28)

*Land capability (irrigated):* 2e

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 7 inches; fine sandy loam

H2—7 to 44 inches; sandy clay loam

H3—44 to 60 inches; fine sandy loam

#### **Minor Components**

##### **Carwile**

##### **Unnamed Wet Soils**

*Phase:* Loamy, Depression

##### **Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

### **NAA—Naron fine sandy loam, 0 to 1 percent slopes**

#### **Map Unit Composition**

Naron: 100 percent

#### **Component Descriptions**

##### **Naron**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*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:* High (About 9.1 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:* Sandy (pe21-28)

*Land capability (irrigated):* 1

*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 14 inches; fine sandy loam

H2—14 to 40 inches; fine sandy loam

H3—40 to 60 inches; fine sandy loam

#### **Minor Components**

##### **Carwile**

##### **Unnamed Wet Soils**

*Phase:* Loamy, Depression

### **NBB—Naron fine sandy loam, 1 to 3 percent slopes**

#### **Map Unit Composition**

Naron: 100 percent

#### **Component Descriptions**

##### **Naron**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*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:* High (About 9.1 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:* Sandy (pe21-28)

*Land capability (irrigated):* 2e

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 14 inches; fine sandy loam

H2—14 to 40 inches; sandy clay loam

H3—40 to 60 inches; fine sandy loam

#### **Minor Components**

##### **Carwile**

##### **Unnamed Wet Soils**

*Phase:* Loamy, Depression



**Nu—Natrustolls, occasionally flooded****Map Unit Composition**

Natrustolls: 100 percent

**Component Descriptions****Natrustolls**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Terrace on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

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

*Available water capacity:* Very low (About 2.1 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 24 to 48 inches

*Runoff class:* Negligible

*Ecological site:* Saline Subirrigated (pe21-28)

*Land capability (nonirrigated):* 6s

*Typical Profile:*

H1—0 to 10 inches; fine sandy loam

H2—10 to 25 inches; clay loam, silty clay loam

H3—25 to 60 inches;

**Minor Components****Plevna****Unnamed Wet Soils**

*Phase:* Loamy, Depression

**Pa—Plevna Soils, frequently flooded****Map Unit Composition**

Plevna: 100 percent

**Component Descriptions****Plevna**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

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

*Available water capacity:* Moderate (About 6.7 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 24 inches

*Runoff class:* Negligible

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 12 inches; fine sandy loam

H2—12 to 38 inches; fine sandy loam

H3—38 to 60 inches; fine sand

**Minor Components****Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

**Pc—Plevna Soils, channeled****Map Unit Composition**

Plevna: 100 percent

**Component Descriptions****Plevna**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

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

*Available water capacity:* Moderate (About 6.7 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 24 inches

*Runoff class:* Negligible

*Ecological site:* Subirrigated (pe21-28)

*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 12 inches; fine sandy loam

H2—12 to 38 inches; fine sandy loam

H3—38 to 60 inches; fine sand

**Minor Components****Unnamed Wet Soils***Phase: Sandy, Drainageway***Ph—Pratt loamy fine sand, 5 to 10 percent slopes****Map Unit Composition**

Pratt: 100 percent

**Component Descriptions****Pratt***MLRA: 79 - Great Bend Sand Plains**Landform: Dune on paleoterrace on river valley**Parent material: Sandy eolian deposits**Slope: 5 to 10 percent**Drainage class: Well drained**Slowest permeability: Rapid (About 5.95 in/hr)**Available water capacity: Moderate (About 6.3 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 (pe21-28)**Land capability (irrigated): 3e**Land capability (nonirrigated): 4e**Typical Profile:*

H1—0 to 8 inches; loamy fine sand

H2—8 to 28 inches; loamy fine sand

H3—28 to 60 inches; loamy fine sand

**Minor Components****Carwile****Unnamed Wet Soils***Phase: Sandy, Depression***Po—Pratt loamy fine sand, 1 to 5 percent slopes****Map Unit Composition**

Pratt: 100 percent

**Component Descriptions****Pratt***MLRA: 79 - Great Bend Sand Plains**Landform: Dune on paleoterrace on river valley**Parent material: Sandy eolian deposits**Slope: 1 to 5 percent**Drainage class: Well drained**Slowest permeability: Rapid (About 5.95 in/hr)**Available water capacity: Moderate (About 6.3 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 (pe21-28)**Land capability (irrigated): 3e**Land capability (nonirrigated): 3e**Typical Profile:*

H1—0 to 8 inches; loamy fine sand

H2—8 to 28 inches; loamy fine sand

H3—28 to 60 inches; loamy fine sand

**Minor Components****Carwile****Unnamed Wet Soils***Phase: Sandy, Depression***Pr—Pratt-Carwile complex, 0 to 8 percent slopes****Map Unit Composition**

Pratt: 60 percent

Carwile: 40 percent

**Component Descriptions****Pratt***MLRA: 79 - Great Bend Sand Plains**Landform: Dune on paleoterrace on river valley**Parent material: Sandy eolian deposits**Slope: 1 to 8 percent**Drainage class: Well drained**Slowest permeability: Rapid (About 5.95 in/hr)**Available water capacity: Moderate (About 6.3 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 (pe21-28)

*Land capability (irrigated):* 3e

*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 8 inches; loamy fine sand

H2—8 to 28 inches; loamy fine sand

H3—28 to 60 inches; loamy fine sand

**Carwile**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Depression on paleoterrace on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* High (About 9.4 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Ponding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 0 inches

*Runoff class:* Negligible

*Ecological site:* Sandy (pe21-28)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 7 inches; fine sandy loam

H2—7 to 14 inches; sandy clay loam

H3—14 to 38 inches; sandy clay

H4—38 to 60 inches; sandy clay loam

**Minor Components**

**Unnamed Hydric Soils**

**Unnamed Wet Soils**

*Phase:* Sandy, Depression

**Pt—Pratt-Tivoli loamy fine sands,  
5 to 15 percent slopes  
Map Unit Composition**

Pratt: 65 percent

Tivoli: 35 percent

**Component Descriptions**

**Pratt**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 5 to 10 percent

*Drainage class:* Well drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Moderate (About 6.3 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 (pe21-28)

*Land capability (irrigated):* 3e

*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 8 inches; loamy fine sand

H2—8 to 28 inches; loamy fine sand

H3—28 to 60 inches; loamy fine sand

**Tivoli**

*MLRA:* 79 - Great Bend Sand Plains

*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 5.95 in/hr)

*Available water capacity:* Low (About 3.2 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 (pe21-28)

*Land capability (nonirrigated):* 7e

*Typical Profile:*

H1—0 to 6 inches; loamy fine sand

H2—6 to 60 inches; fine sand

**Minor Components**

**Carwile**

**Unnamed Wet Soils**

*Phase:* Sandy, Depression

**Ta—Tabler loam, 0 to 1 percent  
slopes**

**Map Unit Composition**

Tabler: 100 percent

### Component Descriptions

#### Tabler

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Clayey alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 9.4 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Negligible

*Ecological site:* Clay Upland (pe21-28)

*Land capability (nonirrigated):* 2s

#### Typical Profile:

H1—0 to 7 inches; loam

H2—7 to 48 inches; clay

H3—48 to 60 inches; clay

#### Minor Components

##### Carwile

#### Unnamed Wet Soils

*Phase:* Clayey, Depression

### TAA—Tabler clay loam, 0 to 1 percent slopes

#### Map Unit Composition

Tabler: 100 percent

### Component Descriptions

#### Tabler

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Clayey alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 9.6 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Clay Upland (pe21-28)

*Land capability (nonirrigated):* 2s

#### Typical Profile:

H1—0 to 10 inches; clay loam

H2—10 to 40 inches; silty clay

H3—40 to 60 inches; silty clay

#### Minor Components

##### Carwile

#### Unnamed Wet Soils

*Phase:* Clayey, Depression

#### Unnamed Wet Soils

*Phase:* Clayey, Drainageway

### Tv—Tivoli fine sand, 5 to 20 percent slopes

#### Map Unit Composition

Tivoli: 100 percent

### Component Descriptions

#### Tivoli

*MLRA:* 79 - Great Bend Sand Plains

*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 5.95 in/hr)

*Available water capacity:* Very low (About 3.0 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:* Choppy Sands (pe21-28)

*Land capability (nonirrigated):* 7e

#### Typical Profile:

H1—0 to 6 inches; fine sand

H2—6 to 60 inches; fine sand

**Minor Components**  
**Carwile**

**Unnamed Wet Soils**  
*Phase: Sandy, Depression*

**Unnamed Wet Soils**  
*Phase: Sandy, Drainageway*

**W—Water**

**Wa—Waldeck fine sandy loam,  
occasionally flooded**

**Map Unit Composition**

Waldeck: 100 percent

**Component Descriptions**

**Waldeck**

*MLRA: 79 - Great Bend Sand Plains*  
*Landform: Flood plain on river valley*  
*Parent material: 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 24 to 48 inches*  
*Runoff class: Negligible*  
*Ecological site: Subirrigated (pe21-28)*  
*Land capability (nonirrigated): 3w*

*Typical Profile:*

H1—0 to 12 inches; fine sandy loam  
H2—12 to 30 inches; fine sandy loam  
H3—30 to 60 inches; fine sand

**Minor Components**

**Unnamed Wet Soils**  
*Phase: Sandy, Drainageway*

**Za—Zenda-Natrustolls complex,  
occasionally flooded**

**Map Unit Composition**

Zenda: 80 percent  
Natrustolls: 20 percent

**Component Descriptions**

**Zenda**

*MLRA: 79 - Great Bend Sand Plains*  
*Landform: Dune on paleoterrace on river valley*  
*Parent material: Sandy eolian deposits*  
*Slope: 0 to 1 percent*  
*Drainage class: Somewhat poorly drained*  
*Slowest permeability: Moderate (About 0.60 in/hr)*  
*Available water capacity: High (About 10.6 inches)*  
*Shrink-swell potential: Moderate (About 4.5 LEP)*  
*Flooding hazard: Occasional*  
*Depth to seasonal water saturation: About 24 to 48 inches*  
*Runoff class: Negligible*  
*Ecological site: Subirrigated (pe21-28)*  
*Land capability (nonirrigated): 4s*

*Typical Profile:*

H1—0 to 20 inches; loam  
H2—20 to 60 inches; loam

**Natrustolls**

*MLRA: 79 - Great Bend Sand Plains*  
*Slope: 0 to 1 percent*  
*Drainage class: Somewhat poorly drained*  
*Slowest permeability: Very slow (About 0.00 in/hr)*  
*Available water capacity: Very low (About 2.1 inches)*  
*Shrink-swell potential: High (About 7.5 LEP)*  
*Flooding hazard: Occasional*  
*Depth to seasonal water saturation: About 24 to 48 inches*  
*Runoff class: Negligible*  
*Land capability (nonirrigated): 6s*

*Typical Profile:*

H1—0 to 10 inches; fine sandy loam  
H2—10 to 25 inches; clay loam  
H3—25 to 60 inches; variable

**Minor Components****Carwile****Unnamed Wet Soils***Phase:* Loamy, Depression*Runoff class:* Very low*Ecological site:* Subirrigated (pe21-28)*Land capability (nonirrigated):* 4s*Typical Profile:*

H1—0 to 14 inches; clay loam

H2—14 to 60 inches; clay loam

**ZSS—Zenda-Drummond complex,  
occasionally flooded****Map Unit Composition**

Zenda: 50 percent

Drummond: 50 percent

**Component Descriptions****Zenda***MLRA:* 79 - Great Bend Sand Plains*Landform:* Dune on paleoterrace on river valley*Parent material:* Sandy eolian deposits*Slope:* 0 to 2 percent*Drainage class:* Somewhat poorly drained*Slowest permeability:* Moderate (About 0.60  
in/hr)*Available water capacity:* High (About 10.5  
inches)*Shrink-swell potential:* Moderate (About 4.5  
LEP)*Flooding hazard:* Occasional*Depth to seasonal water saturation:* About 24 to  
48 inches**Drummond***MLRA:* 79 - Great Bend Sand Plains*Landform:* Terrace on river valley*Parent material:* Clayey and/or loamy alluvium*Slope:* 0 to 2 percent*Drainage class:* Somewhat poorly drained*Slowest permeability:* Very slow (About 0.00  
in/hr)*Available water capacity:* Very low (About 2.8  
inches)*Shrink-swell potential:* High (About 7.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* About 24 to  
48 inches*Runoff class:* Very low*Ecological site:* Saline Lowland (pe21-28)*Land capability (nonirrigated):* 6s*Typical Profile:*

H1—0 to 8 inches; clay loam

H2—8 to 30 inches; clay

H3—30 to 60 inches; variable

**Minor Components****Unnamed Wet Soils***Phase:* Clayey, Depression

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
1005	Albion sandy loam, 1 to 3 percent slopes	All areas are prime farmland
1011	Albion-shellabarger sandy loams, 1 to 3 percent slopes	All areas are prime farmland
1359	Clark-ost loams, 3 to 7 percent slopes	All areas are prime farmland
1725	Farnum and funmar loams, 0 to 1 percent slopes	All areas are prime farmland
1726	Funmar and farnum loams, 1 to 3 percent slopes	All areas are prime farmland
1985	Hayes fine sandy loam, 1 to 5 percent slopes	All areas are prime farmland
3053	Ost loam, 1 to 3 percent slopes	All areas are prime farmland
3511	Saltcreek and naron fine sandy loams, 0 to 1 percent slopes	All areas are prime farmland
3512	Saltcreek and naron fine sandy loams, 1 to 3 percent slopes	All areas are prime farmland
3639	Taver loam, 0 to 1 percent slopes	All areas are prime farmland
At	Attica fine sandy loam, 1 to 4 percent slopes	All areas are prime farmland
Ba	Blanket silt loam, 0 to 1 percent slopes	All areas are prime farmland
Cx	Clark loam, 1 to 3 percent slopes	All areas are prime farmland
Fa	Farnum fine sandy loam, 0 to 1 percent slopes	All areas are prime farmland
Fr	Farnum loam, 0 to 2 percent slopes	All areas are prime farmland
Na	Naron fine sandy loam, 0 to 3 percent slopes	All areas are prime farmland
NAA	Naron fine sandy loam, 0 to 1 percent slopes	All areas are prime farmland
NBB	Naron fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland
Ta	Tabler loam, 0 to 1 percent slopes	All areas are prime farmland
TAA	Tabler clay loam, 0 to 1 percent slopes	All areas are prime farmland
Wa	Waldeck fine sandy loam, occasionally flooded	All areas are prime farmland
An	Albion sandy loam, 1 to 4 percent slopes	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
009DT	Dillwyn-Tivoli Complex, 0 To 15 Percent Slopes-----	25
009TV	Tivoli Fine Sand, 15 To 30 Percent Slopes-----	15
047CS	Carwile-Drummond Complex, 0 To 1 Percent Slopes-----	21
1005	Albion Sandy Loam, 1 To 3 Percent Slopes-----	60
1011	Albion-Shellabarger Sandy Loams, 1 To 3 Percent Slopes-----	60
1324	Carway And Carbika Soils, 0 To 1 Percent Slopes-----	33
1359	Clark-Ost Loams, 3 To 7 Percent Slopes-----	33
151KP	Kanza-Plevna Complex, Frequently Flooded-----	27
1553	Darlow-Elmer Complex, 0 To 2 Percent Slopes-----	26
1555	Dillhut-Plev Complex, 0 To 2 Percent Slopes-----	30
1556	Dillhut-Solvay Complex, 0 To 3 Percent Slopes-----	41
159DP	Dillwyn-Plevna Loamy Fine Sands, 0 To 1 Percent Slopes-----	29
159DT	Dillwyn-Tivoli Complex, 0 To 20 Percent Slopes-----	26
159DU	Drummond Complex, 0 To 1 Percent Slopes-----	37
159PE	Plevna Fine Sandy Loam, Frequently Flooded-----	29
1725	Farnum And Funmar Loams, 0 To 1 Percent Slopes-----	76
1726	Funmar And Farnum Loams, 1 To 3 Percent Slopes-----	74
1985	Hayes Fine Sandy Loam, 1 To 5 Percent Slopes-----	57
1986	Hayes-Solvay Loamy Fine Sands, 0 To 5 Percent Slopes-----	52
1987	Hayes-Turon Complex, 0 To 5 Percent Slopes-----	54
1988	Hayes Loamy Fine Sand, 5 To 10 Percent Slopes-----	49
2381	Kanza-Ninescah Sandy Loams, 0 To 2 Percent Slopes, Commonly Flooded-----	35
2556	Langdon Fine Sand, 0 To 15 Percent Slopes-----	26
2958	Ninnescah Fine Sandy Loam, 0 To 1 Percent Slopes, Occasionally Flooded---	36
3053	Ost Loam, 1 To 3 Percent Slopes-----	40
3180	Pratt Fine Sand, 5 To 10 Percent Slopes-----	37
3181	Pratt-Turon Fine Sands, 1 To 5 Percent Slopes-----	43
3511	Saltcreek And Naron Fine Sandy Loams, 0 To 1 Percent Slopes-----	60
3512	Saltcreek And Naron Fine Sandy Loams, 1 To 3 Percent Slopes-----	65
3520	Saxman Loamy Sand, 0 To 1 Percent Slopes-----	28
3540	Solvay Loamy Fine Sand, 0 To 2 Percent Slopes-----	66
3639	Taver Loam, 0 To 1 Percent Slopes-----	66
3640	Tivin Fine Sand, 10 To 30 Percent Slopes-----	17
3641	Tivin-Dillhut Fine Sands, 0 To 15 Percent Slopes-----	33
3644	Turon-Carway Complex, 0 To 5 Percent Slopes-----	40
3926	Water-----	0
990	Abbyville Loam, 0 To 1 Percent Slopes-----	31
991	Abbyville-Kisiwa Complex, 0 To 2 Percent Slopes, Flooded-----	19
An	Albion Sandy Loam, 1 To 4 Percent Slopes-----	42
At	Attica Fine Sandy Loam, 1 To 4 Percent Slopes-----	49
BIG	Big Salt Marsh, Little Salt Marsh, And Associated Low Areas-----	0
Ba	Blanket Silt Loam, 0 To 1 Percent Slopes-----	64
Ca	Carwile Fine Sandy Loam, 0 To 1 Percent Slopes-----	21
Cw	Carwile Complex, 0 To 1 Percent Slopes-----	20
Cx	Clark Loam, 1 To 3 Percent Slopes-----	33
Dp	Dillwyn-Plevna Complex, 0 To 5 Percent Slopes-----	29
Dt	Dillwyn-Tivoli Loamy Fine Sands, 0 To 15 Percent Slopes-----	26
Fa	Farnum Fine Sandy Loam, 0 To 1 Percent Slopes-----	67
Fr	Farnum Loam, 0 To 2 Percent Slopes-----	71
GRP	Gravel Pits-----	0
INT	Aquolls-----	12
Kg	Kingman Silty Clay Loam, Occasionally Flooded-----	57
M-W	Miscellaneous Water-----	0
NAA	Naron Fine Sandy Loam, 0 To 1 Percent Slopes-----	69
NBB	Naron Fine Sandy Loam, 1 To 3 Percent Slopes-----	68
Na	Naron Fine Sandy Loam, 0 To 3 Percent Slopes-----	68
Nu	Natrustolls, Occasionally Flooded-----	19
Pa	Plevna Soils, Frequently Flooded-----	29
Pc	Plevna Soils, Channeled-----	29
Ph	Pratt Loamy Fine Sand, 5 To 10 Percent Slopes-----	34
Po	Pratt Loamy Fine Sand, 1 To 5 Percent Slopes-----	37
Pr	Pratt-Carwile Complex, 0 To 8 Percent Slopes-----	30
Pt	Pratt-Tivoli Loamy Fine Sands, 5 To 15 Percent Slopes-----	29
TAA	Tabler Clay Loam, 0 To 1 Percent Slopes-----	64
Ta	Tabler Loam, 0 To 1 Percent Slopes-----	62
Tv	Tivoli Fine Sand, 5 To 20 Percent Slopes-----	18
W	Water-----	0
Wa	Waldeck Fine Sandy Loam, Occasionally Flooded-----	36
ZSS	Zenda-Drummond Complex, Occasionally Flooded-----	39
Za	Zenda-Natrustolls Complex, Occasionally Flooded-----	49



Stafford County, Kansas: Published  
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		
009DT:DILLWYN---	60	N/A	4w	Not prime farmland	A	Subirrigated (pe21-28)	1	.17	.17	5	2	134
009DT:TIVOLI----	40	N/A	7e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	1	250
009TV:TIVOLI----	100	N/A	7e	Not prime farmland	A	Choppy Sands (pe21-28)	7	.17	.17	5	1	250
047CS:CARWILE---	90	N/A	2w	Not prime farmland	D	Sandy (pe21-28)	1	.24	.24	5	3	86
047CS:DRUMMOND--	10	N/A	6s	Not prime farmland	D	Saline Lowland (pe21-28)	9W	.32	.32	2	4L	86
1005:ALBION-----	100	N/A	3e	Prime farmland if irrigated	B	Sandy (pe21-28)	6G	.20	.20	4	3	86
	75	N/A	3e	All areas are prime farmland	B	Sandy (pe21-28)	6G	.20	.24	4	3	86
1011:ALBION-----	70	N/A	3e	All areas are prime farmland	B	Sandy (pe21-28)	6G	.20	.24	4	3	86
1011:SHELLABARGE R-----	30	N/A	2e	All areas are prime farmland	B	Sandy (pe21-28)	5	.20	.20	5	3	86
1324:CARWAY-----	50	N/A	2w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
1324:CARBIKA----	30	N/A	2w	Not prime farmland	D	Subirrigated (pe21-28)	2	.24	.24	5	5	56
1359:CLARK-----	70	N/A	2c	All areas are prime farmland	B	Limy Upland (pe21-28)	3	.28	.28	5	4L	86
1359:OST-----	30	N/A	2c	All areas are prime farmland	B	Loamy Upland (pe24-32)	8	.28	.28	5	6	48
151KP:KANZA-----	50	N/A	5w	Not prime farmland	D	Unspecified	2	.17	.17	5	2	134
151KP:PLEVNA----	50	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
1553:CARWILE----	100	N/A	2w	Not prime farmland	D	Sandy (pe21-28)	1	.24	.24	5	3	86
1553:DARLOW-----	70	4s-	4s	Not prime farmland	C	Clay Pan (pe21-28)	8	.43	.43	2	5	56
1553:ELMER-----	20	3s-	3s	Not prime farmland	C	Loamy Terrace (pe21-28)	8	.32	.32	2	3	86
1555:DILLWYN----	65	N/A	4w	Not prime farmland	A	Subirrigated (pe21-28)	1	.17	.17	5	2	134

Stafford County, Kansas: Published  
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		
1555:PLEVNA-----	35	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
1555:DILLHUT----	35	3e-	3e	Not prime farmland	B	Sands (pe21-28)	7	.15	.15	5	1	220
1555:PLEV-----	35	N/A	5w	Not prime farmland	B	Subirrigated (pe21-28)	2	.17	.17	5	2	134
1556:DILLWYN----	65	N/A	4w	Not prime farmland	A	Subirrigated (pe21-28)	1	.17	.17	5	2	134
1556:TIVOLI-----	35	N/A	7e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
1556:DILLHUT----	30	3e-	3e	Not prime farmland	B	Sands (pe21-28)	7	.15	.15	5	1	220
1556:SOLVAY-----	30	N/A	2e	Not prime farmland	D	Subirrigated (pe21-28)	5	.20	.20	5	3	86
159DP:DILLWYN---	60	N/A	4w	Not prime farmland	A	Subirrigated (pe21-28)	1	.17	.17	5	2	134
159DP:PLEVNA-----	40	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.17	.17	5	2	134
159DT:DILLWYN---	60	N/A	4w	Not prime farmland	A	Subirrigated (pe21-28)	1	.17	.17	5	2	134
159DT:TIVOLI-----	40	N/A	7e	Not prime farmland	A	Choppy Sands (pe21-28)	7	.17	.17	5	1	250
159DU:DRUMMOND--	100	N/A	6s	Not prime farmland	D	Saline Lowland (pe21-28)	9W	.43	.43	2	4L	38
159PE:PLEVNA-----	100	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
1725:FARNUM-----	100	1-	2e	All areas are prime farmland	B	Sandy (pe21-28)	3	.20	.20	5	3	86
	100	1-	2c	All areas are prime farmland	B	Loamy Upland (pe21-28)	3	.28	.28	5	6	48
1725:FUNMAR-----	40	1-	2c	All areas are prime farmland	C	Loamy Upland (pe21-28)	3	.28	.28	5	6	56
1725:FARNUM-----	40	1-	2c	All areas are prime farmland	B	Loamy Upland (pe21-28)	4	.28	.28	5	6	56
1726:FARNUM-----	40	1-	2c	All areas are prime farmland	B	Loamy Upland (pe21-28)	4	.28	.28	5	6	56
1726:FUNMAR-----	40	1-	2c	All areas are prime farmland	C	Loamy Upland (pe21-28)	3	.28	.28	5	6	56
1985:ATTICA-----	100	N/A	2e	All areas are prime farmland	B	Sandy (pe21-28)	5	.24	.24	5	3	86

Stafford County, Kansas: Published  
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		
1985:HAYES-----	60	3e-	3e	All areas are prime farmland	B	Sandy (pe21-28)	5	.20	.20	5	3	86
1986:PRATT-----	60	3e-	4e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
1986:HAYES-----	55	3e-	3e	Not prime farmland	B	Sandy (pe21-28)	5	.17	.17	5	2	134
1986:CARWILE----	40	N/A	2w	Not prime farmland	D	Sandy (pe21-28)	1	.24	.24	5	3	86
1986:SOLVAY-----	20	N/A	2e	Not prime farmland	D	Subirrigated (pe21-28)	5	.17	.17	5	2	134
1987:PRATT-----	100	3e-	3e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
1987:HAYES-----	40	3e-	3e	Not prime farmland	B	Sandy (pe21-28)	5	.17	.17	5	2	134
1987:TURON-----	35	3e-	3e	Not prime farmland	A	Sands (pe21-28)	7	.15	.15	5	1	220
1988:HAYES-----	70	3e-	3e	Not prime farmland	B	Sandy (pe21-28)	5	.20	.20	5	3	86
2381:PLEVNA-----	100	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
2381:KANZA-----	50	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
2381:NINNESCAH--	50	N/A	5w	Not prime farmland	B	Subirrigated (pe21-28)	9W	.20	.20	5	3	86
2556:PRATT-----	100	3e-	4e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
2556:LANGDON----	50	N/A	6e	Not prime farmland	A	Choppy Sands (pe21-28)	7	.15	.15	5	1	220
2958:PLEVNA-----	100	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
2958:NINNESCAH--	85	N/A	5w	Not prime farmland	B	Subirrigated (pe21-28)	9W	.20	.20	5	3	86
3053:CLARK-----	100	N/A	3e	All areas are prime farmland	B	Limy Upland (pe21-28)	8	.28	.28	5	4L	86
3053:OST-----	85	N/A	2c	All areas are prime farmland	B	Loamy Upland (pe24-32)	8	.28	.28	5	6	48
3180:PRATT-----	85	3e-	3e	Not prime farmland	A	Sands (pe21-28)	7	.15	.15	5	1	220
3181:PRATT-----	45	3e-	3e	Not prime farmland	A	Sands (pe21-28)	7	.15	.15	5	1	220

Stafford County, Kansas: Published  
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		
3181:TURON-----	30	3e-	3e	Not prime farmland	A	Sands (pe21-28)	7	.15	.15	5	1	220
3511:SALTREEK--	70	1-	3e	All areas are prime farmland	C	Sandy (pe21-28)	5	.20	.20	5	3	86
3511:NARON-----	30	2e-	2e	All areas are prime farmland	B	Sandy (pe21-28)	5	.20	.20	5	3	86
3512:SALTREEK--	50	1-	3e	All areas are prime farmland	C	Sandy (pe21-28)	5	.20	.20	5	3	86
3512:NARON-----	50	3e-	3e	All areas are prime farmland	B	Sandy (pe21-28)	5	.20	.20	5	3	86
3520:WALDECK----	100	N/A	3w	All areas are prime farmland	C	Subirrigated (pe21-28)	1K	.20	.20	4	3	86
3520:SAXMAN-----	85	2e-	3e	Not prime farmland	A	Sandy Lowland (pe21-28)	1	.20	.20	5	2	134
3540:SOLVAY-----	90	N/A	2e	Not prime farmland	D	Subirrigated (pe21-28)	5	.17	.17	5	3	86
3639:BLANKET----	100	N/A	2c	All areas are prime farmland	C	Loamy Upland (pe21-28)	4C	.37	.37	5	5	56
3639:TABLER-----	100	N/A	2s	All areas are prime farmland	D	Clay Upland (pe21-28)	4C	.49	.49	5	6	48
3639:TAVER-----	90	N/A	2s	All areas are prime farmland	D	Clay Upland (pe21-28)	3	.28	.28	5	6	48
3640:TIVIN-----	95	N/A	6e	Not prime farmland	A	Choppy Sands (pe21-28)	7	.15	.15	5	1	220
3640:PRATT-----	65	3e-	4e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
3640:TIVOLI-----	35	N/A	7e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
3641:TIVIN-----	45	N/A	6e	Not prime farmland	A	Choppy Sands (pe21-28)	7	.15	.15	5	1	220
3641:DILLHUT----	40	3e-	3e	Not prime farmland	B	Sands (pe21-28)	7	.15	.15	5	1	220
3644:TURON-----	65	3e-	3e	Not prime farmland	A	Sands (pe21-28)	7	.15	.15	5	1	220
3644:CARWAY-----	20	N/A	2w	Not prime farmland	D	Subirrigated (pe21-28)	2	.17	.17	5	2	134
3926:WATER-----	100	N/A	N/A			Unspecified		---	---	-	---	---

Stafford County, Kansas: Published  
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		
990:KINGMAN-----	100	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.32	.32	5	4L	86
990:ABBYVILLE---	95	3s-	3s	Not prime farmland	C	Saline Subirrigated (pe21-28)	5	.43	.43	2	6	48
990:ZENDA-----	80	N/A	4s	Not prime farmland	C	Subirrigated (pe21-28)	1	.28	.28	5	6	48
990:NATRUSTOLLS-	20	N/A	6s	Not prime farmland	D	Unspecified	9W	.32	.32	2	4L	86
991:NATRUSTOLLS-	100	N/A	6s	Not prime farmland	D	Saline Subirrigated (pe21-28)	9W	.32	.32	2	4L	86
991:ABBYVILLE---	45	3s-	3s	Not prime farmland	C	Saline Subirrigated (pe21-28)	5	.32	.32	2	3	86
991:KISIWA-----	40	N/A	4s	Not prime farmland	D	Saline Subirrigated (pe21-28)	9W	.43	.43	2	6	48
An:ALBION-----	100	N/A	3e	Prime farmland if irrigated	B	Sandy (pe21-28)	6G	.20	.20	4	3	86
At:ATTICA-----	100	N/A	2e	All areas are prime farmland	B	Sandy (pe21-28)	5	.24	.24	5	3	86
BIG:BIG SALT MARSH-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
Ba:BLANKET-----	100	N/A	2c	All areas are prime farmland	C	Loamy Upland (pe21-28)	4C	.37	.37	5	5	56
Ca:CARWILE-----	100	N/A	2w	Not prime farmland	D	Sandy (pe21-28)	1	.24	.24	5	3	86
Cw:CARWILE-----	100	N/A	2w	Not prime farmland	D	Sandy (pe21-28)	1	.24	.24	5	3	86
Cx:CLARK-----	100	N/A	3e	All areas are prime farmland	B	Limy Upland (pe21-28)	8	.28	.28	5	4L	86
Dp:DILLWYN-----	65	N/A	4w	Not prime farmland	A	Subirrigated (pe21-28)	1	.17	.17	5	2	134
Dp:PLEVNA-----	35	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
Dt:DILLWYN-----	65	N/A	4w	Not prime farmland	A	Subirrigated (pe21-28)	1	.17	.17	5	2	134
Dt:TIVOLI-----	35	N/A	7e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
Fa:FARNUM-----	100	1-	2e	All areas are prime farmland	B	Sandy (pe21-28)	3	.20	.20	5	3	86

Stafford County, Kansas: Published  
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		
Fr:FARNUM-----	100	1-	2c	All areas are prime farmland	B	Loamy Upland (pe21-28)	3	.28	.28	5	6	48
GRP:GRAVEL PITS-	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
INT:AQUOLLS-----	100	N/A	5w	Not prime farmland	C	Unspecified		---	---	-	---	0
Kg:KINGMAN-----	100	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.32	.32	5	4L	86
M- W:MISCELLANEOUS WATER-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
NAA:NARON-----	100	1-	2e	All areas are prime farmland	B	Sandy (pe21-28)	5	.20	.20	5	3	86
NBB:NARON-----	100	2e-	3e	All areas are prime farmland	B	Sandy (pe21-28)	5	.20	.20	5	3	86
Na:NARON-----	100	2e-	3e	All areas are prime farmland	B	Sandy (pe21-28)	5	.20	.20	5	3	86
Nu:NATRUSTOLLS--	100	N/A	6s	Not prime farmland	D	Saline Subirrigated (pe21-28)	9W	.32	.32	2	4L	86
Pa:PLEVNA-----	100	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
Pc:PLEVNA-----	100	N/A	5w	Not prime farmland	D	Subirrigated (pe21-28)	2	.20	.20	5	3	86
Ph:PRATT-----	100	3e-	4e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
Po:PRATT-----	100	3e-	3e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
Pr:PRATT-----	60	3e-	4e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
Pr:CARWILE-----	40	N/A	2w	Not prime farmland	D	Sandy (pe21-28)	1	.24	.24	5	3	86
Pt:PRATT-----	65	3e-	4e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
Pt:TIVOLI-----	35	N/A	7e	Not prime farmland	A	Sands (pe21-28)	7	.17	.17	5	2	134
TAA:TABLER-----	100	N/A	2s	All areas are prime farmland	D	Clay Upland (pe21-28)	4C	.43	.43	5	7	38
Ta:TABLER-----	100	N/A	2s	All areas are prime farmland	D	Clay Upland (pe21-28)	4C	.49	.49	5	6	48

Stafford County, Kansas: Published  
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		
Tv:TIVOLI-----	100	N/A	7e	Not prime farmland	A	Choppy Sands (pe21-28)	7	.17	.17	5	1	250
W:WATER-----	100	N/A	N/A			Unspecified		---	---	-	---	---
Wa:WALDECK-----	100	N/A	3w	All areas are prime farmland	C	Subirrigated (pe21-28)	1K	.20	.20	4	3	86
ZSS:ZENDA-----	50	N/A	4s	Not prime farmland	C	Subirrigated (pe21-28)	1	.28	.28	5	6	48
ZSS:DRUMMOND----	50	N/A	6s	Not prime farmland	D	Saline Lowland (pe21-28)	9W	.49	.49	2	4L	86
Za:ZENDA-----	80	N/A	4s	Not prime farmland	C	Subirrigated (pe21-28)	1	.28	.28	5	6	48
Za:NATRUSTOLLS--	20	N/A	6s	Not prime farmland	D	Unspecified	9W	.32	.32	2	4L	86

RANGELAND PRODUCTIVITY  
Stafford 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  
Stafford 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
009DT:				
Dillwyn-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Tivoli-----	Sands (pe21-28)	2,000	1,400	1,000
009TV:				
Tivoli-----	Choppy Sands (pe21-28)	2,000	1,400	1,000
047CS:				
Carwile-----	Sandy (pe21-28)	5,000	3,800	3,000
Drummond-----	Saline Lowland (pe21-28)	7,000	5,800	5,000
151KP:				
Kanza-----	---	---	---	---
Plevna-----	Subirrigated (pe21-28)	9,000	8,000	7,000
159DP:				
Dillwyn-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Plevna-----	Subirrigated (pe21-28)	9,000	8,000	7,000
159DT:				
Dillwyn-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Tivoli-----	Choppy Sands (pe21-28)	2,000	1,400	1,000
159DU:				
Drummond-----	Saline Lowland (pe21-28)	7,000	5,800	5,000
159PE:				
Plevna-----	Subirrigated (pe21-28)	9,000	8,000	7,000
990:				
Abbyville-----	Saline Subirrigated (pe21-28)	7,000	6,000	5,000
991:				
Abbyville, rarely flooded-----	Saline Subirrigated (pe21-28)	7,000	6,000	5,000
Kisiwa, occasionally flooded-----	Saline Subirrigated (pe21-28)	7,000	6,000	5,000
1005:				
Albion-----	Sandy (pe21-28)	4,000	3,000	2,000
1011:				
Albion-----	Sandy (pe21-28)	4,000	3,000	2,000
Shellabarger-----	Sandy (pe21-28)	4,000	3,000	2,000
1324:				
Carway-----	Subirrigated (pe21-28)	9,500	8,500	7,500
Carbika-----	Subirrigated (pe21-28)	9,500	8,500	7,500
1359:				
Clark-----	Limy Upland (pe21-28)	4,500	3,500	3,000
Ost-----	Loamy Upland (pe24-32)	5,500	4,000	2,500
1553:				
Darlow-----	Clay Pan (pe21-28)	3,500	2,500	1,800
Elmer-----	Loamy Terrace (pe21-28)	5,500	5,000	3,400
1555:				
Dillhut-----	Sands (pe21-28)	4,500	3,500	2,500
Plev-----	Subirrigated (pe21-28)	9,500	8,500	7,500
1556:				
Dillhut-----	Sands (pe21-28)	4,500	3,500	2,500
Solvay-----	Subirrigated (pe21-28)	9,500	8,500	7,500
1725:				
Farnum-----	Loamy Upland (pe21-28)	5,500	4,000	2,500
Funmar-----	Loamy Upland (pe21-28)	5,500	4,000	2,500
1726:				
Farnum-----	Loamy Upland (pe21-28)	5,500	4,000	2,500
Funmar-----	Loamy Upland (pe21-28)	5,500	4,000	2,500
1985:				
Hayes-----	Sandy (pe21-28)	4,000	3,000	2,000
1986:				
Hayes-----	Sandy (pe21-28)	4,000	3,000	2,000
Solvay-----	Subirrigated (pe21-28)	9,500	8,500	7,500
1987:				
Hayes-----	Sandy (pe21-28)	4,000	3,000	2,000
Turon-----	Sands (pe21-28)	4,500	3,500	2,500
1988:				
Hayes-----	Sandy (pe21-28)	4,000	3,000	2,000
2381:				
Kanza-----	Subirrigated (pe21-28)	9,500	8,500	7,500
Ninnescah-----	Subirrigated (pe21-28)	9,500	8,500	7,500
2556:				
Langdon-----	Choppy Sands (pe21-28)	3,000	2,150	1,550
2958:				
Ninnescah-----	Subirrigated (pe21-28)	9,500	8,500	7,500
3053:				
Ost-----	Loamy Upland (pe24-32)	5,500	4,000	2,500
3180:				
Pratt-----	Sands (pe21-28)	4,500	3,500	2,500
3181:				
Pratt-----	Sands (pe21-28)	4,500	3,500	2,500
Turon-----	Sands (pe21-28)	4,500	3,500	2,500
3511:				
Saltcreek-----	Sandy (pe21-28)	4,000	3,000	2,000
Naron, sandy substratum-----	Sandy (pe21-28)	4,000	3,000	2,000
3512:				
Saltcreek-----	Sandy (pe21-28)	4,000	3,000	2,000
Naron-----	Sandy (pe21-28)	4,000	3,000	2,000
3520:				
Saxman-----	Sandy Lowland (pe21-28)	6,000	4,750	3,500
3540:				

RANGELAND PRODUCTIVITY--Continued  
Stafford 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
Solvay-----	Subirrigated (pe21-28)	9,500	8,500	7,500
3639:				
Taver-----	Clay Upland (pe21-28)	5,000	3,500	2,500
3640:				
Tivin-----	Choppy Sands (pe21-28)	3,000	2,150	1,550
3641:				
Tivin-----	Choppy Sands (pe21-28)	3,000	2,150	1,550
Dillhut-----	Sands (pe21-28)	4,500	3,500	2,500
3644:				
Turon-----	Sands (pe21-28)	4,500	3,500	2,500
Carway-----	Subirrigated (pe21-28)	9,500	8,500	7,500
3926:				
Water-----	---	---	---	---
An:				
Albion-----	Sandy (pe21-28)	4,000	3,000	2,000
At:				
Attica-----	Sandy (pe21-28)	4,500	3,000	2,000
Ba:				
Blanket-----	Loamy Upland (pe21-28)	6,500	5,000	3,000
BIG:				
Big Salt Marsh-----	---	---	---	---
Ca:				
Carwile-----	Sandy (pe21-28)	5,000	3,800	3,000
Cw:				
Carwile-----	Sandy (pe21-28)	5,000	3,800	3,000
Cx:				
Clark-----	Limy Upland (pe21-28)	5,000	4,000	3,000
Dp:				
Dillwyn-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Plevna-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Dt:				
Dillwyn-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Tivoli-----	Sands (pe21-28)	2,000	1,400	1,000
Fa:				
Farnum-----	Sandy (pe21-28)	5,000	3,500	2,500
Fr:				
Farnum-----	Loamy Upland (pe21-28)	5,500	4,000	2,500
GRP:				
Gravel Pits-----	---	---	---	---
INT:				
Aquolls-----	---	---	---	---
Kg:				
Kingman-----	Subirrigated (pe21-28)	9,000	8,000	7,000
M-W:				
Miscellaneous Water-----	---	---	---	---
Na:				
Naron-----	Sandy (pe21-28)	4,500	3,000	2,000
NAA:				
Naron-----	Sandy (pe21-28)	4,500	3,000	2,000
NBB:				
Naron-----	Sandy (pe21-28)	4,500	3,000	2,000
Nu:				
Natrustolls-----	Saline Subirrigated (pe21-28)	7,000	5,800	5,000
Pa:				
Plevna-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Pc:				
Plevna-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Ph:				
Pratt-----	Sands (pe21-28)	4,500	3,500	2,500
Po:				
Pratt-----	Sands (pe21-28)	4,500	3,500	2,500
Pr:				
Pratt-----	Sands (pe21-28)	4,500	3,500	2,500
Carwile-----	Sandy (pe21-28)	5,000	3,800	3,000
Pt:				
Pratt-----	Sands (pe21-28)	4,500	3,500	2,500
Tivoli-----	Sands (pe21-28)	2,000	1,400	1,000
Ta:				
Tabler-----	Clay Upland (pe21-28)	3,800	2,600	1,800
TAA:				
Tabler-----	Clay Upland (pe21-28)	3,800	2,600	1,800
Tv:				
Tivoli-----	Choppy Sands (pe21-28)	2,000	1,400	1,000
W:				
Water-----	---	---	---	---
Wa:				
Waldeck-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Za:				
Zenda-----	Subirrigated (pe21-28)	9,000	8,000	7,000
Natrustolls-----	---	---	---	---
ZSS:				
Drummond-----	Saline Lowland (pe21-28)	7,000	5,800	5,000
Zenda-----	Subirrigated (pe21-28)	9,000	8,000	7,000

BUILDING SITE DEVELOPMENT  
Stafford 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  
Stafford 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
009DT: Dillwyn-----	60	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
Tivoli-----	40	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
009TV: Tivoli-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
047CS: Carwile-----	90	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Drummond-----	10	Shrink-swell Very limited Shrink-swell	1.00 1.00	Shrink-swell Very limited Shrink-swell Depth to saturated zone	1.00 1.00 0.61	Shrink-swell Very limited Shrink-swell	1.00 1.00
151KP: Kanza-----	50	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
Plevna-----	50	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
159DP: Dillwyn-----	60	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
Plevna-----	40	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
159DT: Dillwyn-----	60	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
Tivoli-----	40	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
159DU: Drummond-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.61	Very limited Shrink-swell	1.00
159PE: Plevna-----	100	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
990: Abbyville-----	95	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to saturated zone Shrink-swell	0.95 0.50	Somewhat limited Shrink-swell	0.50
991: Abbyville, rarely flooded-----	45	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
Kisiwa, occasionally flooded-----	40	Very limited  Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50	Very limited  Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50	Very limited  Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50
1005: Albion-----	75	Not limited		Not limited		Not limited	
1011: Albion-----	70	Not limited		Not limited		Not limited	
Shellabarger-----	30	Not limited		Not limited		Not limited	

BUILDING SITE DEVELOPMENT--Continued  
Stafford County, Kansas

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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
1324: Carway-----	50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Carbika-----	30	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
1359: Clark-----	70	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.00
Ost-----	30	Not limited		Not limited		Somewhat limited Slope	0.12
1553: Darlow-----	70	Not limited		Not limited		Not limited	
Elmer-----	20	Not limited		Not limited		Not limited	
1555: Dillhut-----	35	Not limited		Not limited		Not limited	
Plev-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
1556: Dillhut-----	30	Not limited		Not limited		Not limited	
Solvay-----	30	Not limited		Somewhat limited Depth to saturated zone	0.95	Not limited	
1725: Farnum-----	40	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Funmar-----	40	Not limited		Somewhat limited Shrink-swell	0.50	Not limited	
1726: Farnum-----	40	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Funmar-----	40	Not limited		Somewhat limited Shrink-swell	0.50	Not limited	
1985: Hayes-----	60	Not limited		Very limited Shrink-swell	1.00	Not limited	
1986: Hayes-----	55	Not limited		Very limited Shrink-swell	1.00	Not limited	
Solvay-----	20	Not limited		Somewhat limited Depth to saturated zone	0.95	Not limited	
1987: Hayes-----	40	Not limited		Very limited Shrink-swell	1.00	Not limited	
Turon-----	35	Not limited		Not limited		Not limited	
1988: Hayes-----	70	Not limited		Very limited Shrink-swell	1.00	Somewhat limited Slope	0.48
2381: Kanza-----	50	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
Ninnescah-----	50	Very limited Flooding Depth to saturated zone	1.00 0.39	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.39
2556: Langdon-----	50	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
2958: Ninnescah-----	85	Very limited Flooding Depth to saturated zone	1.00 0.39	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.39
3053: Ost-----	85	Not limited		Not limited		Not limited	
3180: Pratt-----	85	Not limited		Not limited		Somewhat limited Slope	0.86

BUILDING SITE DEVELOPMENT--Continued  
Stafford County, Kansas

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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
3181: Pratt-----	45	Not limited		Not limited		Not limited	
Turon-----	30	Not limited		Not limited		Not limited	
3511: Saltcreek-----	70	Not limited		Very limited Shrink-swell	1.00	Not limited	
Naron, sandy substratum-----	30	Not limited		Not limited		Not limited	
3512: Saltcreek-----	50	Not limited		Very limited Shrink-swell	1.00	Not limited	
Naron-----	50	Not limited		Not limited		Not limited	
3520: Saxman-----	85	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding	1.00
3540: Solvay-----	90	Not limited		Somewhat limited Depth to saturated zone	0.95	Not limited	
3639: Taver-----	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
3640: Tivin-----	95	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
3641: Tivin-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Dillhut-----	40	Not limited		Not limited		Not limited	
3644: Turon-----	65	Not limited		Not limited		Somewhat limited Slope	0.00
Carway-----	20	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
3926: Water-----	100	Not rated		Not rated		Not rated	
An: Albion-----	100	Not limited		Not limited		Not limited	
At: Attica-----	100	Not limited		Not limited		Not limited	
Ba: Blanket-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
BIG: Big Salt Marsh-----	100	Not rated		Not rated		Not rated	
Ca: Carwile-----	100	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Cw: Carwile-----	100	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Cx: Clark-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Dp: Dillwyn-----	65	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
Plevna-----	35	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00

BUILDING SITE DEVELOPMENT--Continued  
Stafford County, Kansas

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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
Dt: Dillwyn-----	65	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
Tivoli-----	35	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Fa: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Fr: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
GRP: Gravel Pits-----	100	Not rated		Not rated		Not rated	
INT: 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
Kg: Kingman-----	100	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Na: Naron-----	100	Not limited		Not limited		Not limited	
NAA: Naron-----	100	Not limited		Not limited		Not limited	
NBB: Naron-----	100	Not limited		Not limited		Not limited	
Nu: Natrustolls-----	100	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone	0.95	Very limited Shrink-swell	1.00
Pa: Plevna-----	100	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
Pc: Plevna-----	100	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
Ph: Pratt-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
Po: Pratt-----	100	Not limited		Not limited		Not limited	
Pr: Pratt-----	60	Not limited		Not limited		Somewhat limited Slope	0.12
Carwile-----	40	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Pt: Pratt-----	65	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
Tivoli-----	35	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Ta: Tabler-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
TAA: Tabler-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Tv: Tivoli-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00

BUILDING SITE DEVELOPMENT--Continued  
Stafford County, Kansas

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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
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Waldeck-----	100	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.95	Very limited Flooding	1.00
Za: Zenda-----	80	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
Natrustolls-----	20	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone	0.95	Very limited Shrink-swell	1.00
ZSS: Drummond-----	50	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone	0.95	Very limited Shrink-swell	1.00
Zenda-----	50	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



BUILDING SITE DEVELOPMENT--Continued  
Stafford County, Kansas

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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
009DT: Dillwyn-----	60	Somewhat limited Depth to saturated zone	0.19	Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.22
				Depth to saturated zone	1.00	Depth to saturated zone	0.19
Tivoli-----	40	Somewhat limited Slope	0.16	Very limited Cutbanks cave	1.00	Very limited Droughty	1.00
				Slope	0.16	Slope	0.16
009TV: Tivoli-----	100	Very limited Slope	1.00	Very limited Cutbanks cave	1.00	Very limited Slope	1.00
				Slope	1.00	Droughty	1.00
047CS: Carwile-----	90	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Shrink-swell	1.00	Too clayey	0.28		
				Cutbanks cave	0.10		
Drummond-----	10	Very limited Shrink-swell	1.00	Somewhat limited Depth to	0.61	Somewhat limited Droughty	0.05
				saturated zone			
				Too clayey	0.28		
				Cutbanks cave	0.10		
151KP: Kanza-----	50	Very limited Flooding	1.00	Very limited Cutbanks cave	1.00	Very limited Flooding	1.00
		Depth to	0.75	Depth to	1.00	Depth to	0.75
		saturated zone		saturated zone		saturated zone	
				Flooding	0.80	Droughty	0.02
Plevna-----	50	Very limited Flooding	1.00	Very limited Depth to	1.00	Very limited Flooding	1.00
		Depth to	1.00	saturated zone		Depth to	
		saturated zone		Cutbanks cave	1.00	saturated zone	1.00
				Flooding	0.80		
159DP: Dillwyn-----	60	Somewhat limited Depth to	0.19	Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.21
		saturated zone		Depth to	1.00	Depth to	0.19
				saturated zone		saturated zone	
Plevna-----	40	Very limited Flooding	1.00	Very limited Depth to	1.00	Very limited Flooding	1.00
		Depth to	1.00	saturated zone		Depth to	
		saturated zone		Cutbanks cave	1.00	saturated zone	1.00
				Flooding	0.80		
159DT: Dillwyn-----	60	Somewhat limited Depth to	0.19	Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.21
		saturated zone		Depth to	1.00	Depth to	0.19
				saturated zone		saturated zone	
Tivoli-----	40	Somewhat limited Slope	0.84	Very limited Cutbanks cave	1.00	Very limited Droughty	1.00
				Slope	0.84	Slope	0.84
159DU: Drummond-----	100	Very limited Shrink-swell	1.00	Somewhat limited Depth to	0.61	Not limited	
				saturated zone			
				Too clayey	0.28		
				Cutbanks cave	0.10		
159PE: Plevna-----	100	Very limited Flooding	1.00	Very limited Depth to	1.00	Very limited Flooding	1.00
		Depth to	1.00	saturated zone		Depth to	
		saturated zone		Cutbanks cave	1.00	saturated zone	1.00
				Flooding	0.80		
990: Abbyville-----	95	Very limited Low strength	1.00	Somewhat limited Depth to	0.95	Very limited Sodium content	1.00
		Shrink-swell	0.50	saturated zone			
				Cutbanks cave	0.10		

BUILDING SITE DEVELOPMENT--Continued  
Stafford County, Kansas

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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
991: Abbyville, rarely flooded-----	45	Very limited		Somewhat limited		Very limited	
		Low strength	1.00	Depth to saturated zone	0.95	Sodium content	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10		
Kisiwa, occasionally flooded-----	40	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Flooding	0.60	Flooding	0.60
		Shrink-swell	0.50	Too clayey	0.08		
1005: Albion-----	75	Not limited		Very limited Cutbanks cave	1.00	Not limited	
1011: Albion-----	70	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Shellabarger-----	30	Not limited		Very limited Cutbanks cave	1.00	Not limited	
1324: Carway-----	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
Carbika-----	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
				Too clayey	0.00		
1359: Clark-----	70	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.78	Cutbanks cave	0.10		
		Shrink-swell	0.50				
Ost-----	30	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.78	Cutbanks cave	0.10		
1553: Darlow-----	70	Very limited		Somewhat limited		Very limited	
		Low strength	1.00	Cutbanks cave	0.10	Sodium content	1.00
Elmer-----	20	Not limited		Somewhat limited		Very limited	
				Cutbanks cave	0.10	Sodium content	1.00
1555: Dillhut-----	35	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.15
Plev-----	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	1.00	Droughty	0.92
1556: Dillhut-----	30	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.15
Solvay-----	30	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
				Depth to saturated zone	0.95		
1725: Farnum-----	40	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
Funmar-----	40	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
1726: Farnum-----	40	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
Funmar-----	40	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
1985: Hayes-----	60	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
				Too clayey	0.02		

BUILDING SITE DEVELOPMENT--Continued  
Stafford County, Kansas

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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
1986: Hayes-----	55	Not limited		Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Not limited	
Solvay-----	20	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.95	Not limited	
1987: Hayes-----	40	Not limited		Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Not limited	
Turon-----	35	Not limited		Very limited Cutbanks cave Too clayey	1.00 0.01	Not limited	
1988: Hayes-----	70	Not limited		Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Not limited	
2381: Kanza-----	50	Very limited Flooding Depth to saturated zone	1.00 0.75	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 1.00 0.80	Very limited Flooding Depth to saturated zone Droughty	1.00 0.75 0.00
Ninnescah-----	50	Very limited Flooding Depth to saturated zone	1.00 0.19	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.19
2556: Langdon-----	50	Somewhat limited Slope	0.00	Very limited Cutbanks cave Slope	1.00 0.00	Somewhat limited Droughty Slope	0.97 0.00
2958: Ninnescah-----	85	Very limited Flooding Depth to saturated zone	1.00 0.19	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.19
3053: Ost-----	85	Somewhat limited Low strength	0.78	Somewhat limited Cutbanks cave	0.10	Not limited	
3180: Pratt-----	85	Not limited		Very limited Cutbanks cave	1.00	Not limited	
3181: Pratt-----	45	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Turon-----	30	Not limited		Very limited Cutbanks cave Too clayey	1.00 0.01	Not limited	
3511: Saltcreek-----	70	Not limited		Somewhat limited Cutbanks cave Too clayey	0.10 0.00	Not limited	
Naron, sandy substratum-----	30	Not limited		Very limited Cutbanks cave	1.00	Not limited	
3512: Saltcreek-----	50	Not limited		Somewhat limited Cutbanks cave Too clayey	0.10 0.00	Not limited	
Naron-----	50	Not limited		Very limited Cutbanks cave	1.00	Not limited	
3520: Saxman-----	85	Somewhat limited Flooding	0.40	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty	0.15
3540: Solvay-----	90	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.95	Not limited	

BUILDING SITE DEVELOPMENT--Continued  
Stafford 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
3639: Taver-----	90	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
3640: Tivin-----	95	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Slope Droughty	1.00 0.98
3641: Tivin-----	45	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Droughty Slope	0.98 0.16
Dillhut-----	40	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.15
3644: Turon-----	65	Not limited		Very limited Cutbanks cave Too clayey	1.00 0.01	Not limited	
Carway-----	20	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
3926: Water-----	100	Not rated		Not rated		Not rated	
An: Albion-----	100	Not limited		Very limited Cutbanks cave	1.00	Not limited	
At: Attica-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Ba: Blanket-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave Too clayey	0.10 0.03	Not limited	
BIG: Big Salt Marsh-----	100	Not rated		Not rated		Not rated	
Ca: Carwile-----	100	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
Cw: Carwile-----	100	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
Cx: Clark-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Dp: Dillwyn-----	65	Somewhat limited Depth to saturated zone	0.19	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty Depth to saturated zone	0.22 0.19
Plevna-----	35	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 1.00 0.80	Very limited Flooding Depth to saturated zone	1.00 1.00

BUILDING SITE DEVELOPMENT--Continued  
Stafford 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
Dt: Dillwyn-----	65	Somewhat limited Depth to saturated zone	0.19	Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.22
				Depth to saturated zone	1.00	Depth to saturated zone	0.19
Tivoli-----	35	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Droughty Slope	0.92 0.16
Fa: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Fr: Farnum-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
GRP: Gravel Pits-----	100	Not rated		Not rated		Not rated	
INT: 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
Kg: Kingman-----	100	Very limited Flooding	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60	Very limited Depth to saturated zone Flooding	1.00 0.60
		Depth to saturated zone Shrink-swell	1.00 0.50	Cutbanks cave	0.10		
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Na: Naron-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
NAA: Naron-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
NBB: Naron-----	100	Not limited		Somewhat limited Cutbanks cave	0.10	Not limited	
Nu: Natrustolls-----	100	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone Too clayey Cutbanks cave	0.95 0.28 0.10	Very limited Salinity Droughty	1.00 0.99
Pa: Plevna-----	100	Very limited Flooding	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Flooding	0.80	Depth to saturated zone	1.00
Pc: Plevna-----	100	Very limited Flooding	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Flooding	0.80	Depth to saturated zone	1.00
Ph: Pratt-----	100	Somewhat limited Slope	0.00	Very limited Cutbanks cave Slope	1.00 0.00	Somewhat limited Slope	0.00
Po: Pratt-----	100	Not limited		Very limited Cutbanks cave	1.00	Not limited	

BUILDING SITE DEVELOPMENT--Continued  
Stafford 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
Pr: Pratt-----	60	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Carwile-----	40	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
Pt: Pratt-----	65	Somewhat limited Slope	0.00	Very limited Cutbanks cave Slope	1.00 0.00	Somewhat limited Slope	0.00
Tivoli-----	35	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Droughty Slope	0.97 0.16
Ta: Tabler-----	100	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.28 0.10	Not limited	
TAA: Tabler-----	100	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.28 0.10	Not limited	
Tv: Tivoli-----	100	Somewhat limited Slope	0.84	Very limited Cutbanks cave Slope	1.00 0.84	Very limited Droughty Slope	1.00 0.84
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Waldeck-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 0.95 0.60	Somewhat limited Flooding	0.60
Za: Zenda-----	80	Very limited Flooding  Shrink-swell	1.00  0.50	Somewhat limited Depth to saturated zone Flooding Cutbanks cave	0.95  0.60 0.10	Somewhat limited Flooding	0.60
Natrustolls-----	20	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone Too clayey Cutbanks cave	0.95 0.28 0.10	Very limited Salinity Droughty	1.00 0.99
ZSS: Drummond-----	50	Very limited Shrink-swell	1.00	Somewhat limited Depth to saturated zone Too clayey Cutbanks cave	0.95 0.28 0.10	Very limited Salinity Droughty	1.00 0.68
Zenda-----	50	Very limited Flooding  Shrink-swell	1.00  0.50	Somewhat limited Depth to saturated zone Flooding Cutbanks cave	0.95  0.60 0.10	Somewhat limited Flooding	0.60

CONSTRUCTION MATERIALS  
Stafford 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  
Stafford 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
009DT: Dillwyn-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.18 0.18
Tivoli-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.99 0.99
009TV: Tivoli-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.99 0.99
047CS: Carwile-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Drummond-----	10	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.09
151KP: Kanza-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.57 0.98
Plevna-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.09
159DP: Dillwyn-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.18 0.18
Plevna-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.09
159DT: Dillwyn-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.18 0.99
Tivoli-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.99 0.99
159DU: Drummond-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
159PE: Plevna-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.09
990: Abbyville-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.04
991: Abbyville, rarely flooded-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.04
Kisiwa, occasionally flooded-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.00



CONSTRUCTION MATERIALS--Continued  
Stafford 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
1005: Albion-----	75	Poor Thickest layer Bottom layer	0.00 0.00	Fair Thickest layer Bottom layer	0.67 0.90
1011: Albion-----	70	Poor Thickest layer Bottom layer	0.00 0.00	Fair Thickest layer Bottom layer	0.67 0.90
Shellabarger-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.88
1324: Carway-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Carbika-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
1359: Clark-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ost-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
1553: Darlow-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.12
Elmer-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.10
1555: Dillhut-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.10 0.13
Plev-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.41 0.43
1556: Dillhut-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.10 0.13
Solvay-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.15 0.56
1725: Farnum-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Funmar-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
1726: Farnum-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Funmar-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued  
Stafford 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
1985: Hayes-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
1986: Hayes-----	55	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Solvay-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.07 0.44
1987: Hayes-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Turon-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.30
1988: Hayes-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2381: Kanza-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.22 0.90
Ninnescah-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.10 0.12
2556: Langdon-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.50 0.50
2958: Ninnescah-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.10 0.12
3053: Ost-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
3180: Pratt-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.84 0.86
3181: Pratt-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.84 0.86
Turon-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.30
3511: Saltcreek-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Naron, sandy substratum-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.10 0.90

CONSTRUCTION MATERIALS--Continued  
Stafford 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
3512: Saltcreek-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Naron-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.07 0.55
3520: Saxman-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.50
3540: Solvay-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.07 0.44
3639: Taver-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Thickest layer Bottom layer	0.00 0.00
3640: Tivin-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Good	
3641: Tivin-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Good	
Dillhut-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.10 0.13
3644: Turon-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.30
Carway-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
3926: Water-----	100	Not rated		Not rated	
An: Albion-----	100	Poor Thickest layer Bottom layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.91
At: Attica-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.07 0.09
Ba: Blanket-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
BIG: Big Salt Marsh-----	100	Not rated		Not rated	
Ca: Carwile-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Cw: Carwile-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.02

CONSTRUCTION MATERIALS--Continued  
Stafford 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
Cx: Clark-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dp: Dillwyn-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.18 0.99
Plevna-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.09
Dt: Dillwyn-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.18 0.99
Tivoli-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.57 0.99
Fa: Farnum-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Fr: Farnum-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GRP: Gravel Pits-----	100	Not rated		Not rated	
INT: Aguolls-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Kg: Kingman-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.08
M-W: Miscellaneous Water-	100	Not rated		Not rated	
Na: Naron-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.05 0.08
NAA: Naron-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.05 0.08
NBB: Naron-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.05 0.08
Nu: Natrustolls-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Pa: Plevna-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.09

CONSTRUCTION MATERIALS--Continued  
Stafford 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
Pc: Plevna-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.09
Ph: Pratt-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.19 0.57
Po: Pratt-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.19 0.57
Pr: Pratt-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.19 0.57
Carwile-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.02
Pt: Pratt-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.19 0.57
Tivoli-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.57 0.99
Ta: Tabler-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TAA: Tabler-----	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
W: Water-----	100	Not rated		Not rated	
Wa: Waldeck-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.09
Za: Zenda-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Natrustolls-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
ZSS: Drummond-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Zenda-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued  
Stafford 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
009DT: Dillwyn-----	60	Poor Wind erosion  Low content of organic matter Too sandy Droughty	0.00  0.00 0.36 0.79	Fair Depth to saturated zone	0.53	Fair Too sandy  Depth to saturated zone	0.36  0.53
Tivoli-----	40	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.00 0.00	Good		Poor Too sandy Slope	0.00 0.84
009TV: Tivoli-----	100	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.00 0.00	Fair Slope	0.82	Poor Too sandy Slope	0.00 0.00
047CS: Carwile-----	90	Poor Low content of organic matter Too clayey Too acid No water erosion limitation	0.00 0.00 0.00 0.97 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.22	Poor Depth to saturated zone Too Clayey	0.00 0.00
Drummond-----	10	Poor Low content of organic matter Too clayey Droughty Water erosion	0.00 0.00 0.11 0.37	Fair Shrink-swell	0.12	Poor Too Clayey  Salinity	0.00 0.88
151KP: Kanza-----	50	Poor Wind erosion  Low content of organic matter Too sandy Droughty Too acid	0.00  0.00 0.00 0.18 0.95	Fair Depth to saturated zone	0.14	Poor Too sandy  Depth to saturated zone	0.00 0.14
Plevna-----	50	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
159DP: Dillwyn-----	60	Poor Wind erosion  Low content of organic matter Too sandy Droughty	0.00  0.00 0.36 0.80	Fair Depth to saturated zone	0.53	Fair Too sandy  Depth to saturated zone	0.36 0.53
Plevna-----	40	Poor Wind erosion  Low content of organic matter	0.00  0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
159DT: Dillwyn-----	60	Poor Too sandy  Wind erosion  Low content of organic matter Droughty	0.00  0.00 0.00 0.80	Fair Depth to saturated zone	0.53	Poor Too sandy  Depth to saturated zone	0.00 0.53

CONSTRUCTION MATERIALS--Continued  
Stafford 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
Tivoli-----	40	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.00 0.00	Good		Poor Too sandy Slope	0.00 0.16
159DU: Drummond-----	100	Poor Low content of organic matter Too clayey Water erosion Droughty	0.00 0.00 0.37 0.75	Fair Shrink-swell	0.96	Poor Too Clayey Salinity	0.00 0.88
159PE: Plevna-----	100	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
990: Abbyville-----	95	Poor Low content of organic matter Sodium content Too alkaline Water erosion	0.00 0.00 0.00 0.90	Poor Low strength Shrink-swell	0.00 0.87	Poor Sodium content Salinity	0.00 0.88
991: Abbyville, rarely flooded-----	45	Poor Low content of organic matter Sodium content Too alkaline	0.00 0.00 0.00	Poor Low strength Shrink-swell	0.00 0.87	Poor Sodium content Salinity	0.00 0.88
Kisiwa, occasionally flooded-----	40	Poor Sodium content Too alkaline Too clayey Water erosion Low content of organic matter	0.00 0.00 0.19 0.90 0.91	Poor Depth to saturated zone Shrink-swell	0.00 0.97	Poor Depth to saturated zone Sodium content Too Clayey	0.00 0.00 0.14
1005: Albion-----	75	Poor Low content of organic matter Too sandy Too acid	0.00 0.00 0.95	Good		Poor Too sandy Hard to reclaim Rock fragments	0.00 0.32 0.72
1011: Albion-----	70	Poor Low content of organic matter Too sandy Too acid	0.00 0.00 0.95	Good		Poor Too sandy Hard to reclaim Rock fragments	0.00 0.32 0.72
Shellabarger-----	30	Fair Low content of organic matter Too acid	0.12 0.84	Good		Good	
1324: Carway-----	50	Fair Low content of organic matter Too acid No water erosion limitation	0.12 0.95 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.89	Poor Depth to saturated zone	0.00

CONSTRUCTION MATERIALS--Continued  
Stafford 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
Carbika-----	30	Fair Too clayey Low content of organic matter Too acid No water erosion limitation	0.74 0.88 0.95 0.99	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Too Clayey	0.00 0.53
1359: Clark-----	70	Poor Carbonate content Low content of organic matter	0.00 0.02	Fair Low strength Shrink-swell	0.22 0.87	Good	
Ost-----	30	Fair Low content of organic matter Carbonate content	0.08 0.68	Good		Fair Carbonate content	0.80
1553: Darlow-----	70	Poor Sodium content Too alkaline Low content of organic matter Too acid Salinity Water erosion	0.00 0.00 0.08 0.16 0.88 0.90	Good		Poor Sodium content Salinity	0.00 0.00
Elmer-----	20	Poor Too alkaline Too acid Low content of organic matter Sodium content No water erosion limitation	0.00 0.16 0.46 0.78 0.99	Fair Shrink-swell	0.99	Poor Sodium content	0.00
1555: Dillhut-----	35	Poor Wind erosion Low content of organic matter Too acid	0.00 0.00 0.99	Good		Good	
Plev-----	35	Poor Too sandy Wind erosion Low content of organic matter Too acid Droughty	0.00 0.00 0.00 0.95 0.99	Poor Depth to saturated zone	0.00	Poor Too sandy Depth to saturated zone	0.00 0.00
1556: Dillhut-----	30	Poor Wind erosion Low content of organic matter Too acid	0.00 0.00 0.99	Good		Good	
Solvay-----	30	Fair Low content of organic matter Too acid	0.04 0.97	Good		Good	
1725: Farnum-----	40	Fair Low content of organic matter Too acid	0.12 0.99	Poor Low strength Shrink-swell	0.00 0.96	Good	
Funmar-----	40	Fair Low content of organic matter No water erosion limitation	0.12 0.99	Poor Low strength	0.00	Good	



CONSTRUCTION MATERIALS--Continued  
Stafford 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
1726: Farnum-----	40	Fair Low content of organic matter Too acid	0.12 0.99	Poor Low strength Shrink-swell	0.00 0.96	Good	
Funmar-----	40	Fair Low content of organic matter No water erosion limitation	0.12 0.99	Poor Low strength	0.00	Good	
1985: Hayes-----	60	Fair Low content of organic matter Too acid	0.12 0.97	Poor Low strength	0.00	Good	
1986: Hayes-----	55	Poor Wind erosion Low content of organic matter Too acid	0.00 0.12 0.97	Poor Low strength	0.00	Good	
Solvay-----	20	Poor Wind erosion Low content of organic matter Too acid	0.00 0.04 0.97	Good		Good	
1987: Hayes-----	40	Poor Wind erosion Low content of organic matter Too acid	0.00 0.12 0.97	Poor Low strength	0.00	Good	
Turon-----	35	Poor Too sandy Wind erosion Too acid Low content of organic matter	0.00 0.00 0.39 0.88	Good		Poor Too sandy Too acid	0.00 0.92
1988: Hayes-----	70	Fair Low content of organic matter Too acid	0.12 0.97	Poor Low strength	0.00	Good	
2381: Kanza-----	50	Fair Low content of organic matter Too sandy Too acid	0.12 0.22 0.95	Fair Depth to saturated zone	0.14	Fair Depth to saturated zone Too sandy	0.14 0.22
Ninnescah-----	50	Fair Low content of organic matter Too sandy	0.08 0.91	Fair Depth to saturated zone	0.53	Fair Depth to saturated zone Too sandy	0.53 0.91
2556: Langdon-----	50	Poor Wind erosion Low content of organic matter Too sandy Droughty Too acid	0.00 0.00 0.00 0.38 0.61	Good		Poor Too sandy Too acid	0.00 0.99
2958: Ninnescah-----	85	Fair Low content of organic matter Too sandy	0.08 0.91	Fair Depth to saturated zone	0.53	Fair Depth to saturated zone Too sandy	0.53 0.91

CONSTRUCTION MATERIALS--Continued  
Stafford 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
3053: Ost-----	85	Fair Low content of organic matter Carbonate content	0.08 0.68	Good		Fair Carbonate content	0.80
3180: Pratt-----	85	Poor Wind erosion Too sandy Low content of organic matter Too acid	0.00 0.00 0.00 0.74	Good		Poor Too sandy	0.00
3181: Pratt-----	45	Poor Wind erosion Too sandy Low content of organic matter Too acid	0.00 0.00 0.00 0.74	Good		Poor Too sandy	0.00
Turon-----	30	Poor Too sandy Wind erosion Too acid Low content of organic matter	0.00 0.00 0.39 0.88	Good		Poor Too sandy Too acid	0.00 0.92
3511: Saltcreek-----	70	Fair Too acid Low content of organic matter No water erosion limitation	0.12 0.12 0.99	Poor Low strength Shrink-swell	0.00 0.95	Good	
Naron, sandy substratum-----	30	Poor Low content of organic matter	0.00	Good		Good	
3512: Saltcreek-----	50	Fair Too acid Low content of organic matter No water erosion limitation	0.12 0.12 0.99	Poor Low strength Shrink-swell	0.00 0.95	Good	
Naron-----	50	Fair Low content of organic matter	0.12	Good		Good	
3520: Saxman-----	85	Poor Wind erosion  Low content of organic matter Too sandy Too acid Droughty	0.00 0.00 0.15 0.16 0.89	Fair Depth to saturated zone	0.89	Fair Too sandy  Depth to saturated zone	0.15 0.89
3540: Solvay-----	90	Fair Low content of organic matter Too acid	0.04 0.97	Good		Good	
3639: Taver-----	90	Poor Too clayey No water erosion limitation	0.00 0.99	Poor Low strength Shrink-swell	0.00 0.27	Poor Too Clayey	0.00

CONSTRUCTION MATERIALS--Continued  
Stafford 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
3640: Tivin-----	95	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	0.00 0.00 0.00 0.36 0.99	Good		Poor Too sandy Slope	0.00 0.00
3641: Tivin-----	45	Poor Too sandy Wind erosion Low content of organic matter Droughty Too acid	0.00 0.00 0.00 0.36 0.99	Good		Poor Too sandy Slope	0.00 0.84
Dillhut-----	40	Poor Wind erosion Low content of organic matter Too acid	0.00 0.00 0.99	Good		Good	
3644: Turon-----	65	Poor Too sandy Wind erosion Too acid Low content of organic matter	0.00 0.00 0.39 0.88	Good		Poor Too sandy Too acid	0.00 0.92
Carway-----	20	Poor Wind erosion Low content of organic matter Too acid No water erosion limitation	0.00 0.12 0.95 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.89	Poor Depth to saturated zone	0.00
3926: Water-----	100	Not rated		Not rated		Not rated	
An: Albion-----	100	Poor Low content of organic matter Too acid	0.00 0.95	Good		Fair Hard to reclaim Rock fragments	0.68 0.97
At: Attica-----	100	Poor Low content of organic matter Too acid	0.00 0.95	Good		Good	
Ba: Blanket-----	100	Poor Low content of organic matter Too clayey Water erosion	0.00 0.00 0.97 0.90	Fair Shrink-swell	0.87	Poor Too Clayey	0.00
BIG: Big Salt Marsh-----	100	Not rated		Not rated		Not rated	
Ca: Carwile-----	100	Poor Low content of organic matter Too clayey Too acid No water erosion limitation	0.00 0.00 0.97 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.22	Poor Depth to saturated zone Too Clayey	0.00 0.00

CONSTRUCTION MATERIALS--Continued  
Stafford 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
Cw: Carwile-----	100	Poor Low content of organic matter Too clayey Too acid No water erosion limitation	0.00 0.00 0.97 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.17	Poor Depth to saturated zone Too Clayey	0.00 0.00
Cx: Clark-----	100	Poor Low content of organic matter Carbonate content	0.00 0.68	Fair Shrink-swell	0.87	Fair Carbonate content	0.68
Dp: Dillwyn-----	65	Poor Too sandy  Wind erosion  Low content of organic matter Droughty	0.00 0.00 0.00 0.79	Fair Depth to saturated zone	0.53	Poor Too sandy  Depth to saturated zone	0.00 0.53
Plevna-----	35	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Dt: Dillwyn-----	65	Poor Too sandy  Wind erosion  Low content of organic matter Droughty	0.00 0.00 0.00 0.79	Fair Depth to saturated zone	0.53	Poor Too sandy  Depth to saturated zone	0.00 0.53
Tivoli-----	35	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.00 0.04	Good		Poor Too sandy Slope	0.00 0.84
Fa: Farnum-----	100	Poor Low content of organic matter	0.00	Good		Good	
Fr: Farnum-----	100	Poor Low content of organic matter	0.00	Good		Good	
GRP: Gravel Pits-----	100	Not rated		Not rated		Not rated	
INT: Aguolls-----	100	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Kg: Kingman-----	100	Poor Low content of organic matter Too clayey	0.00 0.98	Poor Depth to saturated zone Shrink-swell	0.00 0.95	Poor Depth to saturated zone Too Clayey	0.00 0.49
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Na: Naron-----	100	Poor Low content of organic matter	0.00	Good		Good	

CONSTRUCTION MATERIALS--Continued  
Stafford 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
NAA: Naron-----	100	Poor Low content of organic matter	0.00	Good		Good	
NBB: Naron-----	100	Poor Low content of organic matter	0.00	Good		Good	
Nu: Natrustolls-----	100	Poor Droughty Low content of organic matter Too clayey Salinity No water erosion limitation	0.00 0.00 0.00 0.88 0.99	Good		Poor Too Clayey Salinity	0.00 0.00
Pa: Plevna-----	100	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Pc: Plevna-----	100	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Ph: Pratt-----	100	Poor Wind erosion Low content of organic matter Too sandy	0.00 0.00 0.00	Good		Poor Too sandy	0.00
Po: Pratt-----	100	Poor Wind erosion Low content of organic matter Too sandy	0.00 0.00 0.00	Good		Poor Too sandy	0.00
Pr: Pratt-----	60	Poor Wind erosion Low content of organic matter Too sandy	0.00 0.00 0.00	Good		Poor Too sandy	0.00
Carwile-----	40	Poor Low content of organic matter Too clayey Too acid No water erosion limitation	0.00 0.00 0.97 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.17	Poor Depth to saturated zone Too Clayey	0.00 0.00
Pt: Pratt-----	65	Poor Wind erosion Low content of organic matter Too sandy	0.00 0.00 0.00	Good		Poor Too sandy	0.00
Tivoli-----	35	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.00 0.02	Good		Poor Too sandy Slope	0.00 0.84
Ta: Tabler-----	100	Poor Too clayey Low content of organic matter Water erosion	0.00 0.00 0.68	Fair Shrink-swell	0.12	Poor Too Clayey	0.00

CONSTRUCTION MATERIALS--Continued  
Stafford 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
TAA: Tabler-----	100	Poor Too clayey Low content of organic matter Water erosion	0.00 0.00 0.90	Fair Shrink-swell	0.12	Poor Too Clayey	0.00
Tv: Tivoli-----	100	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.00 0.00	Good		Poor Too sandy Slope	0.00 0.16
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Waldeck-----	100	Poor Low content of organic matter	0.00	Good		Good	
Za: Zenda-----	80	Poor Low content of organic matter	0.00	Fair Shrink-swell	0.87	Good	
Natrustolls-----	20	Poor Droughty Low content of organic matter Too clayey Salinity No water erosion limitation	0.00 0.00 0.00 0.88 0.99	Good		Poor Too Clayey Salinity	0.00 0.00
ZSS: Drummond-----	50	Poor Low content of organic matter Droughty Too clayey Water erosion Salinity	0.00 0.00 0.00 0.68 0.88	Fair		Poor Too Clayey Salinity	0.00 0.00
Zenda-----	50	Poor Low content of organic matter	0.00	Fair Shrink-swell	0.87	Good	

# RECREATIONAL INTERPRETATIONS

## Stafford 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  
Stafford 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
009DT: Dillwyn-----	60	Somewhat limited Depth to saturated zone Too sandy	0.39 0.37	Somewhat limited Too sandy Depth to saturated zone	0.37 0.19	Somewhat limited Depth to saturated zone Too sandy	0.39 0.37
Tivoli-----	40	Very limited Too sandy Slope	1.00 0.16	Very limited Too sandy Slope	1.00 0.16	Very limited Too sandy Slope	1.00 1.00
009TV: Tivoli-----	100	Very limited Too sandy Slope	1.00 1.00	Very limited Too sandy Slope	1.00 1.00	Very limited Too sandy Slope	1.00 1.00
047CS: Carwile-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Drummond-----	10	Restricted permeability Somewhat limited Restricted permeability	0.94 0.45	Restricted permeability Somewhat limited Restricted permeability	0.94 0.45	Restricted permeability Somewhat limited Restricted permeability	0.94 0.45
151KP: Kanza-----	50	Very limited Flooding Depth to saturated zone Too sandy	1.00 0.98 0.92	Somewhat limited Too sandy Depth to saturated zone Flooding	0.92 0.75 0.40	Very limited Flooding Depth to saturated zone Too sandy	1.00 0.98 0.92
Plevna-----	50	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
159DP: Dillwyn-----	60	Somewhat limited Depth to saturated zone Too sandy	0.39 0.37	Somewhat limited Too sandy Depth to saturated zone	0.37 0.19	Somewhat limited Depth to saturated zone Too sandy	0.39 0.37
Plevna-----	40	Very limited Flooding Depth to saturated zone Too sandy	1.00 1.00 0.37	Very limited Depth to saturated zone Flooding Too sandy	1.00 0.40 0.37	Very limited Flooding Depth to saturated zone Too sandy	1.00 1.00 0.37
159DT: Dillwyn-----	60	Somewhat limited Depth to saturated zone Too sandy	0.39 0.37	Somewhat limited Too sandy Depth to saturated zone	0.37 0.19	Somewhat limited Depth to saturated zone Too sandy	0.39 0.37
Tivoli-----	40	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
159DU: Drummond-----	100	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45
159PE: Plevna-----	100	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
990: Abbyville-----	95	Very limited Sodium content Restricted permeability	1.00 0.39	Very limited Sodium content Restricted permeability	1.00 0.39	Very limited Sodium content Restricted permeability	1.00 0.39
991: Abbyville, rarely flooded-----	45	Very limited Sodium content Flooding Restricted permeability	1.00 1.00 0.39	Very limited Sodium content Restricted permeability	1.00 0.39	Very limited Sodium content Restricted permeability	1.00 0.39
Kisiwa, occasionally flooded-----	40	Very limited		Very limited		Very limited	



RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	1.00	Restricted	1.00	Ponding	1.00
		Ponding	1.00	permeability	1.00	Restricted	1.00
		Restricted permeability	1.00			Flooding	0.60
1005: Albion-----	75	Somewhat limited Too sandy	0.02	Somewhat limited Too sandy	0.02	Somewhat limited Slope Gravel content Too sandy	0.13 0.06 0.02
1011: Albion-----	70	Somewhat limited Too sandy	0.02	Somewhat limited Too sandy	0.02	Somewhat limited Slope Gravel content Too sandy	0.13 0.06 0.02
Shellabarger-----	30	Not limited		Not limited		Somewhat limited Slope	0.00
1324: Carway-----	50	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
Carbika-----	30	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
1359: Clark-----	70	Not limited		Not limited		Somewhat limited Slope	0.50
Ost-----	30	Not limited		Not limited		Somewhat limited Slope	0.87
1553: Darlow-----	70	Very limited Sodium content	1.00	Very limited Sodium content	1.00	Very limited Sodium content	1.00
		Restricted permeability	0.45	Restricted permeability	0.45	Restricted permeability	0.45
Elmer-----	20	Very limited Sodium content	1.00	Very limited Sodium content	1.00	Very limited Sodium content	1.00
		Restricted permeability	0.39	Restricted permeability	0.39	Restricted permeability	0.39
1555: Dillhut-----	35	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.00
Plev-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Too sandy	0.94	Too sandy	0.94	Too sandy	0.94
1556: Dillhut-----	30	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.00
Solvay-----	30	Somewhat limited Too sandy	0.38	Somewhat limited Too sandy	0.38	Somewhat limited Too sandy	0.38
1725: Farnum-----	40	Not limited		Not limited		Not limited	
Funmar-----	40	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39
1726: Farnum-----	40	Not limited		Not limited		Somewhat limited Slope	0.00
Funmar-----	40	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability Slope	0.39 0.00
1985: Hayes-----	60	Not limited		Not limited		Somewhat limited Slope	0.13
1986: Hayes-----	55	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy	0.87

RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
Solvay-----	20	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Slope Somewhat limited Too sandy	0.13 0.37
1987: Hayes-----	40	Somewhat limited Too sandy	0.94	Somewhat limited Too sandy	0.94	Somewhat limited Too sandy Slope	0.94 0.13
Turon-----	35	Somewhat limited Too sandy	0.98	Somewhat limited Too sandy	0.98	Somewhat limited Too sandy Slope	0.98 0.13
1988: Hayes-----	70	Not limited		Not limited		Very limited Slope	1.00
2381: Kanza-----	50	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone Flooding	0.75	Very limited Flooding	1.00
		Depth to saturated zone	0.98		0.40	Depth to saturated zone	0.98
Ninnescah-----	50	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.19	Somewhat limited Flooding	0.60
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
2556: Langdon-----	50	Very limited Too sandy Slope	1.00 0.00	Very limited Too sandy Slope	1.00 0.00	Very limited Too sandy Slope	1.00 1.00
2958: Ninnescah-----	85	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.19	Somewhat limited Flooding	0.60
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
3053: Ost-----	85	Not limited		Not limited		Somewhat limited Slope	0.00
3180: Pratt-----	85	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 1.00
3181: Pratt-----	45	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.13
Turon-----	30	Somewhat limited Too sandy	0.98	Somewhat limited Too sandy	0.98	Somewhat limited Too sandy Slope	0.98 0.13
3511: Saltcreek-----	70	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39
Naron, sandy substratum-----	30	Somewhat limited Too sandy	0.08	Somewhat limited Too sandy	0.08	Somewhat limited Too sandy	0.08
3512: Saltcreek-----	50	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability Slope	0.39 0.00
Naron-----	50	Not limited		Not limited		Somewhat limited Slope	0.00
3520: Saxman-----	85	Very limited Flooding Too sandy	1.00 0.39	Somewhat limited Too sandy	0.39	Somewhat limited Too sandy	0.39
3540: Solvay-----	90	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37
3639: Taver-----	90	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45
3640: Tivin-----	95	Very limited Too sandy Slope	1.00 1.00	Very limited Too sandy Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00
3641: Tivin-----	45	Very limited Too sandy Slope	1.00 0.16	Very limited Too sandy Slope	1.00 0.16	Very limited Too sandy Slope	1.00 1.00
Dillhut-----	40	Very limited		Very limited		Very limited	

RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
3644: Turon-----	65	Too sandy	1.00	Too sandy	1.00	Too sandy Slope	1.00 0.13
		Somewhat limited Too sandy	0.98	Somewhat limited Too sandy	0.98	Somewhat limited Too sandy Slope	0.98 0.50
Carway-----	20	Very limited Depth to saturated zone Ponding	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone Ponding	1.00
			1.00	Depth to saturated zone	1.00		1.00
		Restricted permeability Too sandy	1.00	Restricted permeability Too sandy	1.00	Restricted permeability Too sandy	1.00
3926: Water-----	100		0.82		0.82		0.82
		Not rated		Not rated		Not rated	
An: Albion-----	100	Not limited		Not limited		Somewhat limited Slope Gravel content	0.13 0.06
At: Attica-----	100	Not limited		Not limited		Somewhat limited Slope	0.13
Ba: Blanket-----	100	Not limited		Not limited		Not limited	
BIG: Big Salt Marsh-----	100	Not rated		Not rated		Not rated	
Ca: Carwile-----	100	Very limited Depth to saturated zone Ponding	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone Ponding	1.00
			1.00	Depth to saturated zone	1.00		1.00
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
Cw: Carwile-----	100	Very limited Depth to saturated zone Ponding	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone Ponding	1.00
			1.00	Depth to saturated zone	1.00		1.00
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
Cx: Clark-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Dp: Dillwyn-----	65	Somewhat limited Depth to saturated zone Too sandy	0.39	Somewhat limited Too sandy	0.37	Somewhat limited Depth to saturated zone Too sandy	0.39
			0.37	Depth to saturated zone	0.19		0.37
Plevna-----	35	Very limited Flooding	1.00	Very limited Depth to saturated zone Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00		0.40	Depth to saturated zone	1.00
Dt: Dillwyn-----	65	Somewhat limited Depth to saturated zone Too sandy	0.39	Somewhat limited Too sandy	0.37	Somewhat limited Depth to saturated zone Too sandy	0.39
			0.37	Depth to saturated zone	0.19		0.37
Tivoli-----	35	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
Fa: Farnum-----	100	Not limited		Not limited		Not limited	
Fr: Farnum-----	100	Not limited		Not limited		Not limited	
GRP: Gravel Pits-----	100	Not rated		Not rated		Not rated	
INT: Aguolls-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Restricted permeability	1.00

RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
Kg: Kingman-----	100	Restricted permeability	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Restricted permeability	0.15	Flooding	0.60
M-W: Miscellaneous Water-	100	Restricted permeability	0.15			Restricted permeability	0.15
Na: Naron-----	100	Not rated		Not rated		Not rated	
NAA: Naron-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
NBB: Naron-----	100	Not limited		Not limited		Not limited	
Nu: Natrustolls-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Pa: Plevna-----	100	Very limited Salinity	1.00	Very limited Salinity	1.00	Very limited Salinity	1.00
		Restricted permeability	0.45	Restricted permeability	0.45	Restricted permeability	0.45
Pc: Plevna-----	100	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Flooding	0.40	Depth to saturated zone	1.00
Ph: Pratt-----	100	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Flooding	0.40	Depth to saturated zone	1.00
Po: Pratt-----	100	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37
		Slope	0.00	Slope	0.00	Slope	0.00
Pr: Pratt-----	100	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37
		Slope	0.13	Slope	0.13	Slope	0.13
Carwile-----	40	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37
		Slope	0.37	Slope	0.37	Slope	0.37
Pt: Pratt-----	65	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
Tivoli-----	35	Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
Ta: Tabler-----	100	Somewhat limited Too sandy	0.37	Somewhat limited Too sandy	0.37	Very limited Slope	1.00
		Slope	0.00	Slope	0.00	Too sandy	0.37
TAA: Tabler-----	100	Somewhat limited Too sandy	0.92	Somewhat limited Too sandy	0.92	Very limited Slope	1.00
		Slope	0.16	Slope	0.16	Too sandy	0.92
Tv: Tivoli-----	100	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45
W: Water-----	100	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45
W: Water-----	100	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
		Slope	0.84	Slope	0.84	Slope	1.00
W: Water-----	100	Not rated		Not rated		Not rated	

RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
Wa: Waldeck-----	100	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Za: Zenda-----	80	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Natrustolls-----	20	Very limited Salinity	1.00	Very limited Salinity	1.00	Very limited Salinity	1.00
		Restricted permeability	0.45	Restricted permeability	0.45	Restricted permeability	0.45
ZSS: Drummond-----	50	Very limited Salinity	1.00	Very limited Salinity	1.00	Very limited Salinity	1.00
		Restricted permeability	0.45	Restricted permeability	0.45	Restricted permeability	0.45
Zenda-----	50	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60

RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
009DT: Dillwyn-----	60	Somewhat limited Too sandy	0.37	Somewhat limited Droughty Depth to saturated zone	0.22 0.19
Tivoli-----	40	Very limited Too sandy	1.00	Very limited Droughty Slope	1.00 0.16
009TV: Tivoli-----	100	Very limited Too sandy Slope	1.00 0.18	Very limited Slope Droughty	1.00 1.00
047CS: Carwile-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Drummond-----	10	Not limited		Somewhat limited Droughty	0.05
151KP: Kanza-----	50	Somewhat limited Too sandy Depth to saturated zone Flooding	0.92 0.44 0.40	Very limited Flooding Depth to saturated zone Droughty	1.00 0.75 0.02
Plevna-----	50	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
159DP: Dillwyn-----	60	Somewhat limited Too sandy	0.37	Somewhat limited Droughty Depth to saturated zone	0.21 0.19
Plevna-----	40	Very limited Depth to saturated zone Flooding Too sandy	1.00 0.40 0.37	Very limited Flooding Depth to saturated zone	1.00 1.00
159DT: Dillwyn-----	60	Somewhat limited Too sandy	0.37	Somewhat limited Droughty Depth to saturated zone	0.21 0.19
Tivoli-----	40	Very limited Too sandy	1.00	Very limited Droughty Slope	1.00 0.84
159DU: Drummond-----	100	Not limited		Not limited	
159PE: Plevna-----	100	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
990: Abbyville-----	95	Not limited		Very limited Sodium content	1.00
991: Abbyville, rarely flooded-----	45	Not limited		Very limited Sodium content	1.00
Kisiwa, occasionally flooded-----	40	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Flooding	1.00 1.00 0.60
1005: Albion-----	75	Somewhat limited Too sandy	0.02	Not limited	
1011: Albion-----	70	Somewhat limited Too sandy	0.02	Not limited	
Shellabarger-----	30	Not limited		Not limited	

RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
1324: Carway-----	50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Carbika-----	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
1359: Clark-----	70	Not limited		Not limited	
Ost-----	30	Not limited		Not limited	
1553: Darlow-----	70	Not limited		Very limited Sodium content	1.00
Elmer-----	20	Not limited		Very limited Sodium content	1.00
1555: Dillhut-----	35	Very limited Too sandy	1.00	Somewhat limited Droughty	0.15
Plev-----	35	Very limited Depth to saturated zone Too sandy	1.00 0.94	Very limited Depth to saturated zone Droughty	1.00 0.92
1556: Dillhut-----	30	Very limited Too sandy	1.00	Somewhat limited Droughty	0.15
Solvay-----	30	Somewhat limited Too sandy	0.38	Not limited	
1725: Farnum-----	40	Not limited		Not limited	
Funmar-----	40	Not limited		Not limited	
1726: Farnum-----	40	Not limited		Not limited	
Funmar-----	40	Not limited		Not limited	
1985: Hayes-----	60	Not limited		Not limited	
1986: Hayes-----	55	Somewhat limited Too sandy	0.87	Not limited	
Solvay-----	20	Somewhat limited Too sandy	0.37	Not limited	
1987: Hayes-----	40	Somewhat limited Too sandy	0.94	Not limited	
Turon-----	35	Somewhat limited Too sandy	0.98	Not limited	
1988: Hayes-----	70	Not limited		Not limited	
2381: Kanza-----	50	Somewhat limited Depth to saturated zone Flooding	0.44 0.40	Very limited Flooding Depth to saturated zone Droughty	1.00 0.75 0.00
Ninnescah-----	50	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.19
2556: Langdon-----	50	Very limited Too sandy	1.00	Somewhat limited Droughty Slope	0.97 0.00
2958: Ninnescah-----	85	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.19
3053: Ost-----	85	Not limited		Not limited	
3180: Pratt-----	85	Very limited Too sandy	1.00	Not limited	
3181: Pratt-----	45	Very limited Too sandy	1.00	Not limited	
Turon-----	30	Somewhat limited Too sandy	0.98	Not limited	

RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
3511: Saltcreek----- Naron, sandy substratum-----	70 30	Not limited Somewhat limited  Too sandy	  0.08	Not limited Not limited	
3512: Saltcreek----- Naron-----	50 50	Not limited Not limited		Not limited Not limited	
3520: Saxman-----	85	Somewhat limited Too sandy	0.39	Somewhat limited Droughty	0.15
3540: Solvay-----	90	Somewhat limited Too sandy	0.37	Not limited	
3639: Taver-----	90	Not limited		Not limited	
3640: Tivin-----	95	Very limited Too sandy Slope	1.00 0.00	Very limited Slope Droughty	1.00 0.98
3641: Tivin-----	45	Very limited Too sandy	1.00	Somewhat limited Droughty Slope	0.98 0.16
Dillhut-----	40	Very limited Too sandy	1.00	Somewhat limited Droughty	0.15
3644: Turon-----	65	Somewhat limited Too sandy	0.98	Not limited	
Carway-----	20	Very limited Depth to saturated zone Ponding  Too sandy	1.00 1.00 0.82	Very limited Ponding  Depth to saturated zone	1.00 1.00
3926: Water-----	100	Not rated		Not rated	
An: Albion-----	100	Not limited		Not limited	
At: Attica-----	100	Not limited		Not limited	
Ba: Blanket-----	100	Not limited		Not limited	
BIG: Big Salt Marsh-----	100	Not rated		Not rated	
Ca: Carwile-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding  Depth to saturated zone	1.00 1.00
Cw: Carwile-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding  Depth to saturated zone	1.00 1.00
Cx: Clark-----	100	Not limited		Not limited	
Dp: Dillwyn-----	65	Somewhat limited Too sandy	0.37	Somewhat limited Droughty Depth to saturated zone	0.22 0.19
Plevna-----	35	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding  Depth to saturated zone	1.00 1.00
Dt: Dillwyn-----	65	Somewhat limited Too sandy	0.37	Somewhat limited Droughty Depth to saturated zone	0.22 0.19
Tivoli-----	35	Somewhat limited Too sandy	0.92	Somewhat limited Droughty Slope	0.92 0.16



RECREATIONAL INTERPRETATIONS--Continued  
Stafford County, Kansas

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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
Fa: Farnum-----	100	Not limited		Not limited	
Fr: Farnum-----	100	Not limited		Not limited	
GRP: Gravel Pits-----	100	Not rated		Not rated	
INT: Aquolls-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
Kg: Kingman-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
				Flooding	0.60
M-W: Miscellaneous Water-	100	Not rated		Not rated	
Na: Naron-----	100	Not limited		Not limited	
NAA: Naron-----	100	Not limited		Not limited	
NBB: Naron-----	100	Not limited		Not limited	
Nu: Natrustolls-----	100	Not limited		Very limited Salinity	1.00
				Droughty	0.99
Pa: Plevna-----	100	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Flooding	0.40	Depth to saturated zone	1.00
Pc: Plevna-----	100	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Flooding	0.40	Depth to saturated zone	1.00
Ph: Pratt-----	100	Somewhat limited Too sandy	0.37	Somewhat limited Slope	0.00
Po: Pratt-----	100	Somewhat limited Too sandy	0.37	Not limited	
Pr: Pratt-----	60	Somewhat limited Too sandy	0.37	Not limited	
Carwile-----	40	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
Pt: Pratt-----	65	Somewhat limited Too sandy	0.37	Somewhat limited Slope	0.00
Tivoli-----	35	Somewhat limited Too sandy	0.92	Somewhat limited Droughty	0.97
				Slope	0.16
Ta: Tabler-----	100	Not limited		Not limited	
TAA: Tabler-----	100	Not limited		Not limited	
Tv: Tivoli-----	100	Very limited Too sandy	1.00	Very limited Droughty	1.00
				Slope	0.84
W: Water-----	100	Not rated		Not rated	
Wa: Waldeck-----	100	Not limited		Somewhat limited Flooding	0.60
Za: Zenda-----	80	Not limited		Somewhat limited	

RECREATIONAL INTERPRETATIONS--Continued  
Stafford 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
Natrustolls-----	20	Not limited		Flooding	0.60
				Very limited	1.00
				Salinity	0.99
				Droughty	
ZSS:					
Drummond-----	50	Not limited		Very limited	1.00
				Salinity	0.68
				Droughty	
Zenda-----	50	Not limited		Somewhat limited	
				Flooding	0.60

# WILDLIFE INTERPRETATIONS Stafford 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  
Stafford 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
009DT: DILLWYN-----	Poor	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
009TV: TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
047CS: CARWILE-----	Fair	Good	Good	---	---	Good	Good	Fair	Good	---	Fair	Good
DRUMMOND-----	Poor	Fair	Fair	---	Poor	Poor	Fair	Fair	Fair	---	Fair	Poor
151KP: KANZA-----	Very poor	Poor	Fair	---	---	Fair	Fair	Fair	Poor	---	Fair	Fair
PLEVNA-----	Poor	Fair	Fair	---	---	Fair	Good	Good	Fair	---	Good	Fair
159DP: DILLWYN-----	Poor	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
PLEVNA-----	Poor	Fair	Fair	---	---	Fair	Good	Good	Fair	---	Good	Fair
159DT: DILLWYN-----	Poor	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
159DU: DRUMMOND-----	Poor	Fair	Fair	---	Poor	Poor	Fair	Fair	Fair	---	Fair	Poor
159PE: PLEVNA-----	Poor	Fair	Fair	---	---	Fair	Good	Good	Fair	---	Good	Fair
990: ABBYVILLE-----	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Poor	Poor	Poor
991: ABBYVILLE-----	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Poor	Poor	Poor
KISIWA-----	Poor	Fair	Poor	Fair	Fair	Very poor	Good	Good	Fair	Fair	Good	Poor
1005: ALBION-----	Fair	Good	Fair	Poor	Poor	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
1011: ALBION-----	Fair	Good	Fair	Poor	Poor	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
SHELLABARGER----	Good	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	Good
1324: CARWAY-----	Fair	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
CARBIKA-----	Fair	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
1359: CLARK-----	Good	Good	Fair	Fair	Fair	Fair	Poor	Very poor	Good	Good	Very poor	Fair
OST-----	Good	Good	Fair	Fair	Fair	Fair	Poor	Poor	Good	Fair	Poor	Fair
1553: DARLOW-----	Fair	Fair	Poor	Fair	Poor	Poor	Good	Fair	Fair	Fair	Fair	Poor
ELMER-----	Fair	Fair	Poor	Fair	Poor	Poor	Poor	Poor	Fair	Fair	Poor	Poor
1555: DILLHUT-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
PLEV-----	Fair	Good	Good	Good	Good	Good	Good	Fair	Good	Good	Fair	Good
1556: DILLHUT-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair

WILDLIFE INTERPRETATIONS--Continued  
Stafford 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
SOLVAY-----	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
1725: FARNUM-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
FUNMAR-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
1726: FARNUM-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
FUNMAR-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
1985: HAYES-----	Fair	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Fair
1986: HAYES-----	Fair	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Fair
SOLVAY-----	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
1987: HAYES-----	Fair	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Fair
TURON-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
1988: HAYES-----	Fair	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Fair
2381: KANZA-----	Very poor	Poor	Fair	Fair	Fair	Fair	Good	Good	Poor	Good	Good	Fair
NINNESCAH-----	Poor	Fair	Fair	Fair	Poor	Fair	Good	Good	Fair	Fair	Good	Fair
2556: LANGDON-----	Poor	Poor	Fair	Good	Fair	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
2958: NINNESCAH-----	Poor	Fair	Fair	Fair	Poor	Fair	Good	Good	Fair	Fair	Good	Fair
3053: OST-----	Good	Good	Fair	Fair	Fair	Fair	Poor	Poor	Good	Fair	Poor	Fair
3180: PRATT-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
3181: PRATT-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
TURON-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
3511: SALTCREEK-----	Good	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	Fair
NARON-----	Good	Good	Good	Good	Good	Fair	Poor	Very poor	Good	Fair	Very poor	Good
3512: SALTCREEK-----	Good	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	Fair
NARON-----	Good	Good	Good	Good	Good	Fair	Poor	Very poor	Good	Fair	Very poor	Good
3520: SAXMAN-----	Fair	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Fair
3540: SOLVAY-----	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
3639: TAVER-----	Good	Good	Good	Good	Fair	Fair	Poor	Poor	Good	Fair	Poor	Good

WILDLIFE INTERPRETATIONS--Continued  
Stafford 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
3640: TIVIN-----	Poor	Poor	Fair	Fair	Fair	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
3641: TIVIN-----	Poor	Poor	Fair	Fair	Fair	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
DILLHUT-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
3644: TURON-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Poor	Very poor	Fair
CARWAY-----	Fair	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
3926: WATER-----	---	---	---	---	---	---	---	---	---	---	---	---
An: ALBION-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
At: ATTICA-----	Good	Good	Good	---	---	Good	Poor	Very poor	Good	---	Very poor	Good
Ba: BLANKET-----	Good	Good	Fair	---	Good	Good	Poor	Very poor	Good	---	Very poor	Fair
BIG: BIG SALT MARSH--	---	---	---	---	---	---	---	---	---	---	---	---
Ca: CARWILE-----	Fair	Good	Good	---	---	Good	Good	Fair	Good	---	Fair	Good
Cw: CARWILE-----	Fair	Good	Good	---	---	Good	Good	Fair	Good	---	Fair	Good
Cx: CLARK-----	Fair	Good	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	---	Very poor	Fair
Dp: DILLWYN-----	Poor	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
PLEVNA-----	Poor	Fair	Fair	---	---	Fair	Good	Good	Fair	---	Good	Fair
Dt: DILLWYN-----	Poor	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
Fa: FARNUM-----	Good	Good	Good	---	---	Good	Poor	Poor	Good	---	Poor	Good
Fr: FARNUM-----	Good	Good	Good	---	---	Good	Poor	Poor	Good	---	Poor	Good
GRP: GRAVEL PITS-----	---	---	---	---	---	---	---	---	---	---	---	---
INT: AQUOLLS-----	---	---	---	---	---	---	---	---	---	---	---	---
Kg: KINGMAN-----	Poor	Fair	Good	---	---	Fair	Fair	Fair	Fair	---	Fair	Fair
M-W: MISCELLANEOUS WATER-----	---	---	---	---	---	---	---	---	---	---	---	---
Na: NARON-----	Good	Good	Good	---	---	Fair	Poor	Very poor	Good	---	Very poor	Fair
NAA: NARON-----	Good	Good	Good	---	---	Fair	Poor	Very poor	Good	---	Very poor	Fair

WILDLIFE INTERPRETATIONS--Continued  
Stafford 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
NBB: NARON-----	Good	Good	Good	---	---	Fair	Poor	Very poor	Good	---	Very poor	Fair
Nu: NATRUSTOLLS----	Poor	Fair	Fair	---	Poor	Poor	Fair	Fair	Fair	---	Fair	Poor
Pa: PLEVNA-----	Poor	Fair	Fair	---	---	Fair	Good	Good	Fair	---	Good	Fair
Pc: PLEVNA-----	Poor	Fair	Fair	---	---	Fair	Good	Good	Fair	---	Good	Fair
Ph: PRATT-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
Po: PRATT-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
Pr: PRATT-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
CARWILE-----	Fair	Good	Good	---	---	Good	Good	Fair	Good	---	Fair	Good
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
Ta: TABLER-----	Good	Good	Good	---	---	Good	Poor	Poor	Good	---	Poor	Good
TAA: TABLER-----	Good	Good	Fair	---	---	Fair	Poor	Poor	Good	---	Poor	Fair
Tv: TIVOLI-----	Poor	Poor	Fair	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
W: WATER-----	---	---	---	---	---	---	---	---	---	---	---	---
Wa: WALDECK-----	Fair	Good	Good	---	---	Good	Fair	Fair	Good	---	Fair	Good
Za: ZENDA-----	Fair	Good	Good	---	---	Good	Fair	Fair	Good	---	Fair	Good
NATRUSTOLLS----	Poor	Fair	Fair	---	Poor	Poor	Fair	Fair	Fair	---	Fair	Poor
ZSS: DRUMMOND-----	Poor	Fair	Fair	---	Poor	Poor	Fair	Fair	Fair	---	Fair	Poor
ZENDA-----	Fair	Good	Good	---	---	Good	Fair	Fair	Good	---	Fair	Good



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

PAGE 2 OF 5

(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		Smooth brome grass	
	N	I	N	I	N	I
			Tons	Tons	AUM	AUM
009DT: Dillwyn-----	4w	---	---	---	---	---
Tivoli-----	7e	---	---	---	---	---
009TV: Tivoli-----	7e	---	---	---	---	---
047CS: Carwile-----	2w	---	---	---	---	---
Drummond-----	6s	---	---	---	---	---
151KP: Kanza-----	5w	---	---	---	---	---
Plevna-----	5w	---	---	---	---	---
159DP: Dillwyn-----	4w	---	---	---	---	---
Plevna-----	5w	---	---	---	---	---
159DT: Dillwyn-----	4w	---	---	---	---	---
Tivoli-----	7e	---	---	---	---	---
159DU: Drummond-----	6s	---	---	---	---	---
159PE: Plevna-----	5w	---	---	---	---	---
990: Abbyville-----	3s	3s	3.00	5.00	---	---
991: Abbyville, rarely flooded	3s	3s	3.00	5.00	---	---
Kisiwa, occasionally flooded-----	4s	---	---	---	---	---
1005: Albion-----	3e	---	2.00	---	4.00	---
1011: Albion-----	3e	---	2.00	---	4.00	---
Shellabarger-----	2e	---	2.20	6.50	4.50	9.00
1324: Carway-----	2w	---	5.00	---	7.00	---
Carbika-----	2w	---	5.00	---	7.00	---
1359: Clark-----	2c	---	---	---	---	---
Ost-----	2c	---	---	---	---	---
1553: Darlow-----	4s	4s	3.00	5.00	---	---
Elmer-----	3s	3s	3.50	5.00	---	---
1555: Dillhut-----	3e	3e	---	5.50	3.00	8.00
Plev-----	5w	---	---	---	---	---
1556: Dillhut-----	3e	3e	---	5.50	3.00	8.00
Solvay-----	2e	---	5.00	6.00	5.00	6.00
1725: Farnum-----	2c	1	3.00	7.00	5.00	10.00
Funmar-----	2c	1	3.00	7.00	5.00	10.00

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

PAGE 3 OF 5

(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		Smooth brome grass	
	N	I	N	I	N	I
			Tons	Tons	AUM	AUM
1726: Farnum-----	2c	1	3.00	7.00	5.00	10.00
Funmar-----	2c	1	3.00	7.00	5.00	10.00
1985: Hayes-----	3e	3e	3.00	6.00	4.00	9.00
1986: Hayes-----	3e	3e	3.00	6.00	4.00	9.00
Solvay-----	2e	---	5.00	6.00	5.00	6.00
1987: Hayes-----	3e	3e	3.00	6.00	4.00	9.00
Turon-----	3e	3e	---	5.50	3.00	8.00
1988: Hayes-----	3e	3e	3.00	6.00	4.00	9.00
2381: Kanza-----	5w	---	---	---	---	---
Ninnescah-----	5w	---	---	---	---	---
2556: Langdon-----	6e	---	---	---	---	---
2958: Ninnescah-----	5w	---	---	---	---	---
3053: Ost-----	2c	---	---	---	---	---
3180: Pratt-----	3e	3e	---	5.50	3.00	8.00
3181: Pratt-----	3e	3e	---	5.50	3.00	8.00
Turon-----	3e	3e	---	5.50	3.00	8.00
3511: Saltcreek-----	3e	1	3.00	7.00	5.00	10.00
Naron, sandy substratum--	2e	2e	3.00	7.00	5.00	10.00
3512: Saltcreek-----	3e	1	3.00	7.00	5.00	10.00
Naron-----	3e	3e	3.00	6.50	5.00	9.00
3520: Saxman-----	3e	2e	3.50	7.00	---	---
3540: Solvay-----	2e	---	5.00	6.00	5.00	6.00
3639: Taver-----	2s	---	4.00	8.00	6.00	11.00
3640: Tivin-----	6e	---	---	---	---	---
3641: Tivin-----	6e	---	---	---	---	---
Dillhut-----	3e	3e	---	5.50	3.00	8.00
3644: Turon-----	3e	3e	---	5.50	3.00	8.00
Carway-----	2w	---	5.00	---	7.00	---
3926: Water-----	---	---	---	---	---	---
An: Albion-----	3e	---	2.00	---	---	---

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

PAGE 4 OF 5

(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		Smooth brome grass	
	N	I	N	I	N	I
			Tons	Tons	AUM	AUM
At: Attica-----	2e	---	3.00	6.50	---	---
Ba: Blanket-----	2c	---	3.50	7.00	---	---
BIG: Big Salt Marsh-----	---	---	---	---	---	---
Ca: Carwile-----	2w	---	---	---	---	---
Cw: Carwile-----	2w	---	---	---	---	---
Cx: Clark-----	3e	---	---	---	---	---
Dp: Dillwyn-----	4w	---	---	---	---	---
Plevna-----	5w	---	---	---	---	---
Dt: Dillwyn-----	4w	---	---	---	---	---
Tivoli-----	7e	---	---	---	---	---
Fa: Farnum-----	2e	1	3.00	7.00	---	---
Fr: Farnum-----	2c	1	3.50	7.00	---	---
GRP: Gravel Pits-----	---	---	---	---	---	---
INT: Aquolls-----	5w	---	---	---	---	---
Kg: Kingman-----	5w	---	---	---	---	---
M-W: Miscellaneous Water-----	---	---	---	---	---	---
Na: Naron-----	3e	2e	3.00	6.50	---	---
NAA: Naron-----	2e	1	3.00	7.00	---	---
NBB: Naron-----	3e	2e	3.00	6.50	---	---
Nu: Natrustolls-----	6s	---	---	---	---	---
Pa: Plevna-----	5w	---	---	---	---	---
Pc: Plevna-----	5w	---	---	---	---	---
Ph: Pratt-----	4e	3e	---	5.50	---	---
Po: Pratt-----	3e	3e	2.50	5.50	---	---
Pr: Pratt-----	4e	3e	---	5.50	---	---
Carwile-----	2w	---	---	---	---	---
Pt: Pratt-----	4e	3e	---	5.50	---	---
Tivoli-----	7e	---	---	---	---	---

(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		Smooth brome grass	
	N	I	N	I	N	I
			Tons	Tons	AUM	AUM
Ta: Tabler-----	2s	---	---	---	---	---
TAA: Tabler-----	2s	---	---	---	---	---
Tv: Tivoli-----	7e	---	---	---	---	---
W: Water-----	---	---	---	---	---	---
Wa: Waldeck-----	3w	---	3.50	5.00	---	---
Za: Zenda-----	4s	---	4.00	5.50	---	---
Natrustolls-----	6s	---	---	---	---	---
ZSS: Drummond-----	6s	---	---	---	---	---
Zenda-----	4s	---	4.00	5.50	---	---

CONSERVATION TREE AND SHRUB MANAGEMENT  
Stafford 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  
Stafford 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
009DT: Dillwyn----- Tivoli-----	1 7	Well suited Moderately suited Sandiness	Well suited Moderately suited Slope Sandiness	Well suited Well suited	Well suited Well suited	Low Low
009TV: Tivoli-----	7	Moderately suited Sandiness	Poorly suited Slope Sandiness	Poorly suited Slope	Poorly suited Slope	Low
047CS: Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High
Drummond-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Wetness Moderate Salinity
151KP: Kanza----- Plevna-----	2 2	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Unsuited Wetness	Low High Wetness
159DP: Dillwyn----- Plevna-----	1 2	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Unsuited Wetness	Low High Wetness
159DT: Dillwyn----- Tivoli-----	1 7	Well suited Moderately suited Sandiness	Well suited Moderately suited Slope Sandiness	Well suited Well suited	Well suited Well suited	Low Low
159DU: Drummond-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Moderate Salinity
159PE: Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
990: Abbyville-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water Soil reaction Salinity
991: Abbyville, rarely flooded-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water Soil reaction Salinity High
Kisiwa, occasionally flooded-----	9W	Unsuited Wetness	Poorly suited Wetness	Unsuited Wetness	Unsuited Wetness	Wetness Soil reaction
1005: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Moderate Available water
1011: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Moderate Available water
Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
1324: Carway-----	2	Well suited	Well suited	Well suited	Well suited	High Wetness
Carbika-----	2	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
1359: Clark-----	3	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Ost-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Low
1553: Darlow-----	8	Well suited	Well suited	Well suited	Well suited	Moderate

CONSERVATION TREE AND SHRUB MANAGEMENT  
Stafford 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
Elmer----- 1555: Dillhut-----	8 7	Well suited Moderately suited Sandiness	Well suited Moderately suited Sandiness	Well suited Well suited	Well suited Well suited	Available water Salinity Low High
Plev----- 1556: Dillhut-----	2 7	Moderately suited Sandiness Moderately suited Sandiness	Moderately suited Sandiness Moderately suited Sandiness	Well suited Well suited	Well suited Well suited	Available water High Wetness High
Solvay----- 1725: Farnum----- Funmar----- 1726: Farnum----- Funmar----- 1985: Hayes-----	5 4 3 4 3 5	Well suited Well suited Well suited Well suited Well suited Well suited	Well suited Well suited Well suited Well suited Well suited Well suited	Well suited Well suited Well suited Well suited Well suited Well suited	Well suited Well suited Well suited Well suited Well suited Well suited	Available water Moderate Available water Low Low Low Low Moderate Available water
1986: Hayes----- Solvay-----	5 5	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Well suited	Moderate Available water Moderate Available water
1987: Hayes----- Turon----- 1988: Hayes-----	5 7 5	Well suited Moderately suited Sandiness Well suited	Well suited Moderately suited Sandiness Moderately suited Slope	Well suited Well suited Well suited	Well suited Well suited Well suited	Moderate Available water Low Moderate Available water Low
2381: Kanza----- Ninnescah-----	2 9W	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Well suited	Moderate Available water Low Moderate Wetness Soil reaction
2556: Langdon----- 2958: Ninnescah-----	7 9W	Moderately suited Sandiness Well suited	Moderately suited Sandiness Slope Well suited	Well suited Well suited	Well suited Well suited	Low Moderate Wetness Soil reaction
3053: Ost----- 3180: Pratt----- 3181: Pratt----- Turon-----	8 7 7 7	Well suited Well suited Well suited Moderately suited Slope Well suited Moderately suited Sandiness	Well suited Well suited Moderately suited Slope Well suited Moderately suited Sandiness	Well suited Well suited Well suited Well suited	Well suited Well suited Well suited Well suited	Low Low Low Low Low
3511: Saltcreek----- Naron, sandy substratum-----	5 5	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Well suited	Moderate Available water Low



CONSERVATION TREE AND SHRUB MANAGEMENT  
Stafford 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
3512: Saltcreek-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
Naron-----	5	Well suited	Well suited	Well suited	Well suited	
3520: Saxman-----	1	Well suited	Well suited	Well suited	Well suited	Low
3540: Solvay-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
3639: Taver-----	3	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Moderate Available water
3640: Tivin-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Poorly suited Slope	Poorly suited Slope	Low
3641: Tivin-----	7	Moderately suited Sandiness	Moderately suited Sandiness Slope	Well suited	Well suited	Low
Dillhut-----	7	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	High Available water
3644: Turon-----	7	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Low
Carway-----	2	Well suited	Well suited	Well suited	Well suited	High Wetness
3926: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated
An: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Low
At: Attica-----	5	Well suited	Well suited	Well suited	Well suited	Low
Ba: Blanket-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
BIG: Big Salt Marsh-----		Not rated	Not rated	Not rated	Not rated	Not rated
Ca: Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Wetness
Cw: Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Wetness
Cx: Clark-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Dp: Dillwyn-----	1	Well suited	Well suited	Well suited	Well suited	Low
Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
Dt: Dillwyn-----	1	Well suited	Well suited	Well suited	Well suited	Low
Tivoli-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Fa: Farnum-----	3	Well suited	Well suited	Well suited	Well suited	Low
Fr: Farnum-----	3	Well suited	Well suited	Well suited	Well suited	Low
GRP: Gravel Pits-----		Not rated	Not rated	Not rated	Not rated	Not rated

CONSERVATION TREE AND SHRUB MANAGEMENT  
Stafford 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
INT: Aquolls-----		Well suited	Well suited	Well suited	Well suited	High Wetness Soil reaction
Kg: Kingman-----	2	Well suited	Well suited	Well suited	Well suited	High Wetness Soil reaction
M-W: Miscellaneous Water-		Not rated	Not rated	Not rated	Not rated	Not rated
Na: Naron-----	5	Well suited	Well suited	Well suited	Well suited	Low
NAA: Naron-----	5	Well suited	Well suited	Well suited	Well suited	Low
NBB: Naron-----	5	Well suited	Well suited	Well suited	Well suited	Low
Nu: Natrustolls-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High  Salinity Soil reaction
Pa: Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
Pc: Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
Ph: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Po: Pratt-----	7	Well suited	Well suited	Well suited	Well suited	Low
Pr: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High  Wetness
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
Ta: Tabler-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
TAA: Tabler-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Tv: Tivoli-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
W: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated
Wa: Waldeck-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Za: Zenda-----	1	Well suited	Well suited	Well suited	Well suited	Low
Natrustolls-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited Well suited	Well suited Well suited	High  Salinity Soil reaction
ZSS: Drummond-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High  Salinity Soil reaction
Zenda-----	1	Well suited	Well suited	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT  
Stafford 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

ENGINEERING INDEX PROPERTIES  
Stafford 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  
Stafford 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	
009DT: Dillwyn-----	0-8	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	70-90	5-35	---	NP
	8-60	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-35	---	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
009TV: 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
047CS: 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
	11-17	Sandy clay loam	CL, SC	A-6, A-7	0	0	100	100	90-100	36-90	35-50	14-26
	17-42	Clay	CH, CL, SC	A-6, A-7	0	0	100	100	90-100	40-95	35-70	14-38
	42-60	Clay loam	CL, SC, CH	A-4, A-6, A-7	0	0	100	100	90-100	36-95	25-70	7-38
Drummond-----	0-8	Fine sandy loam	CL, ML, SC, SM	A-4	0	0	100	98-100	94-100	36-60	15-30	NP-10
	8-30		CH, CL	A-6, A-7	0	0	100	100	96-100	80-98	35-60	15-35
	>30				---	---	---	---	---	---	---	---
151KP: Kanza-----	0-11	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	90-100	5-35	---	NP
	11-40	Fine sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	80-100	5-35	---	NP
Plevna-----	0-10	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-26	NP-6
	10-40	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	30-50	15-26	NP-6
	40-60	Fine sand	SM, SP	A-2, A-3	0	0	100	90-100	50-90	4-35	---	NP
159DP: Dillwyn-----	0-9	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	70-90	5-35	0-5	NP
	9-60	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-35	0-5	NP
Plevna-----	0-10	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	10-20	NP
	10-33	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	30-50	15-26	NP-6
	33-60	Fine sand	SM, SP	A-2, A-3	0	0	100	90-100	50-90	4-35	0-5	NP
159DT: Dillwyn-----	0-9	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	70-90	5-35	---	NP
	9-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-35	---	NP
Tivoli-----	0-7	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
	7-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
159DU: Drummond-----	0-8	Silty clay loam	CL	A-6, A-7	0	0	100	100	96-100	80-98	37-50	15-26
	8-35	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	96-100	80-98	35-60	15-35
	35-60	Silty clay loam			---	---	---	---	---	---	---	---
159PE: Plevna-----	0-10	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-26	NP-6
	10-33	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	30-50	15-26	NP-6
	33-60	Fine sand	SM, SP	A-2, A-3	0	0	100	90-100	50-90	4-35	---	NP
990: Abbyville-----	0-8	Loam	CL	A-4, A-6	0	0	100	100	85-95	50-70	25-35	10-15
	8-15	Sandy clay loam	CL, SC	A-4, A-6	0	0	100	100	90-100	45-65	30-35	10-15
	15-24	Clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	50-80	35-45	15-20
	24-35	Clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	50-80	35-45	15-20
	35-49	Clay loam	CL	A-7-6, A-6	0	0	100	100	90-100	50-80	35-45	15-20
	49-61	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	40-65	30-42	15-20
	61-69	Loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	40-65	30-42	15-20
	69-80	Clay loam	CL, SC	A-7-6, A-6	0	0	100	100	80-100	40-65	30-42	15-20
991: Abbyville, rarely flooded	0-8	Fine sandy loam	SC-SM	A-4	0	0	100	100	85-95	36-45	20-30	5-10
	8-15	Sandy clay loam	CL, SC	A-4, A-6	0	0	100	100	90-100	45-65	30-35	10-15
	15-24	Clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	50-80	35-45	15-20
	24-35	Clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	50-80	35-45	15-20
	35-49	Clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	50-80	35-45	15-20
	49-61	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	40-65	30-42	15-20
	61-69	Loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	40-65	30-42	15-20
	69-80	Clay loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	40-65	30-42	15-20
Kisiwa, occasionally flooded-----	0-4	Loam	CL	A-4, A-6	0	0	100	100	85-96	60-75	30-35	10-15
	4-7	Loam	CL	A-6, A-4	0	0	100	100	85-96	60-75	30-35	10-15
	7-14	Clay loam	CL	A-7-6, A-6	0	0	100	95-100	90-100	65-95	35-45	15-20
	14-23	Clay loam	CL	A-7-6, A-6	0	0	100	95-100	90-100	65-95	35-45	15-20
	23-31	Clay	CL, CH	A-7-6, A-6	0	0	100	95-100	90-100	70-80	35-55	15-30
	31-40	Clay	CL, CH	A-7-6, A-6	0	0	100	95-100	90-100	70-80	35-55	15-30
	40-46	Loam	CL, CH	A-7-6, A-6	0	0	94-100	90-100	85-100	55-80	35-55	15-30
	46-52	Fine sandy loam	ML, CL, SM, SC	A-4	0	0	85-100	82-100	60-95	40-50	0-30	NP-10
	52-58	Fine sandy loam	CL, ML, SM, SC	A-4	0	0	89-100	80-100	60-95	40-50	0-30	NP-10
	58-65	Stratified coarse sand to fine sandy loam	SM, SC, SC-SM	A-4, A-2-4	0	0	100	95-100	50-90	15-60	0-25	NP-10
	65-80	Stratified coarse sand	SM, SC, SC-SM	A-2-4	0	0	100	100	50-70	15-30	0-25	NP-10

ENGINEERING INDEX PROPERTIES--Continued  
Stafford 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	
1005: Albion-----	In											
	0-9	Sandy loam	SM, SC, SC-SM	A-2, A-4	0	0	100	75-100	60-90	25-45	0-25	NP-10
	9-16	Sandy loam	SM, SC-SM, SC	A-2, A-4	0	0	85-100	75-100	50-95	25-40	20-30	NP-10
	16-27	Sandy loam	SC-SM, SC, SM	A-2, A-4	0	0	85-100	75-100	50-95	25-40	20-30	NP-10
	27-48	Loamy coarse sand	SC-SM, SM, SC	A-1-b, A-2	0	0	85-100	75-90	40-70	15-30	0-25	NP-10
	48-80	Sand	GM, SP-SM, GP-GM, SM	A-3, A-1, A-2	0	0-5	40-100	35-85	30-70	5-30	0-20	NP-5
1011: Albion-----												
	0-9	Sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0	100	75-100	60-90	25-45	0-25	NP-10
	9-16	Sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0	85-100	75-100	50-95	25-40	20-30	NP-10
	16-27	Sandy loam	SC, SC-SM, SM	A-2-4, A-4	0	0	85-100	75-100	50-95	25-40	20-30	NP-10
	27-48	Loamy coarse sand	SC, SC-SM, SM	A-1-b, A-2-4	0	0	85-100	75-90	40-70	15-30	0-25	NP-10
	48-80	Sand	SM, SP-SM, GP-GC, GP- GM, GM, SP- SM	A-3, A-1-b, A-2-4	0	0-5	40-100	35-85	30-70	5-30	0-20	NP-5
Shellabarger---												
	0-7	Sandy loam	SM, ML	A-4, A-2	0	0	95-100	95-100	75-100	30-55	0-30	NP-5
	7-11	Sandy clay loam	SC	A-4, A-6	0	0	95-100	85-100	70-90	35-50	25-40	8-20
	11-19	Sandy clay loam	SC	A-4, A-6	0	0	95-100	85-100	70-90	35-50	25-40	8-20
	19-33	Sandy loam	SC	A-4, A-6	0	0	95-100	85-100	70-90	35-50	25-40	8-20
	33-47	Coarse sandy loam	SC, SM, SP- SM, SC-SM, SP-SM	A-2, A-4	0	0	80-100	70-100	50-80	10-40	0-30	NP-10
	47-59	Loamy sand	SC, SM, SP- SM, SC-SM, SP-SM	A-2, A-4	0	0	80-100	70-100	50-80	10-40	0-30	NP-10
	59-73	Sand	SC, SM, SP- SM, SC-SM, SP-SM	A-2, A-4	0	0	80-100	70-100	50-80	10-40	0-30	NP-10
	73-80	Sand	SC, SM, SP- SM, SC-SM, SP-SM	A-2, A-4	0	0	80-100	70-100	50-80	10-40	0-30	NP-10
1324: Carway-----												
	0-7	Fine sandy loam	SC, CL	A-2-6, A-6	0	0	100	100	80-95	30-55	20-30	10-15
	7-10	Sandy clay loam	SC, CL	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	10-15	Sandy clay loam	SC, CL	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	15-22	Fine sandy loam	SC, CL	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	22-35	Fine sandy loam	SC, CL	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	35-40	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-60	25-40
	40-54	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-60	25-40
	54-63	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-60	25-40
	63-72	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-60	25-40
	72-80	Clay loam	SC, CL	A-6	0	0	100	100	75-90	45-60	25-35	10-15
Carbika-----												
	0-11	Silt loam	SC-SM, SM	A-2-4, A-4	0	0	100	100	90-100	30-45	20-30	1-7
	11-15	Clay	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	30-35
	15-22	Clay loam	CH, CL	A-7-6	0	0	100	100	90-100	85-99	45-55	30-35
	22-34	Clay loam	SC, CL	A-4, A-6	0	0	100	100	85-100	45-60	30-35	10-15
	34-41	Clay loam	SC, CL	A-4, A-6	0	0	100	100	85-100	45-60	30-35	10-15
	41-60	Clay loam	CL, SC	A-4, A-6	0	0	100	100	85-100	45-60	30-35	10-15
	60-80	Clay loam	CL, SC	A-4, A-6	0	0	100	100	85-100	45-60	30-35	10-15
1359: Clark-----												
	0-11	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-95	60-75	25-35	5-15
	11-16	Loam	CL	A-6	0	0	100	95-100	80-100	50-80	30-40	10-20
	16-28	Loam	CL, CL-ML	A-4	0	0	100	95-100	80-100	50-80	30-40	10-20
	28-45	Fine sandy loam	CL-ML, CL	A-4	0	0	100	95-100	80-100	50-80	30-40	10-20
	45-65	Fine sandy loam	CL-ML, CL	A-4	0	0	100	95-100	80-100	50-80	30-40	10-20
	65-80	Very fine sandy loam	CL-ML, CL	A-4	0	0	100	95-100	80-100	50-80	30-40	10-20
Ost-----												
	0-8	Loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	85-95	60-75	20-35	5-15
	8-12	Loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	60-80	30-45	10-20
	12-18	Loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	60-80	30-45	10-20
	18-23	Clay loam	CL, SC	A-6, A-7	0	0	95-100	90-100	80-100	35-80	30-45	10-20
	23-38	Clay loam	CL, SC, SC- SM, CL-ML, ML, SM	A-2, A-4, A-6	0	0	85-100	85-100	60-100	30-80	20-40	5-20
	38-54	Loam	CL, SC, SC- SM, CL-ML, ML, SM	A-2, A-4, A-6	0	0	85-100	85-100	60-100	30-80	20-40	5-20
	54-80	Loam	CL, SC, SC- SM, CL-ML, ML, SM	A-2, A-4, A-6	0	0	85-100	85-100	60-100	30-80	20-40	5-20

ENGINEERING INDEX PROPERTIES--Continued  
Stafford 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	
1553: Darlow-----	0-5	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-95	53-75	21-30	4-11
	5-8	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-95	53-75	21-30	4-11
	8-14	Loam	CL	A-6	0	0	100	100	90-100	60-80	30-39	11-18
	14-20	Clay loam	CL	A-6	0	0	100	100	90-100	60-80	30-39	11-18
	20-26	Loam	CL	A-6	0	0	100	100	90-100	60-80	30-39	11-18
	26-33	Loam	CL	A-6, A-7-6	0	0	100	100	90-100	55-80	30-44	11-22
	33-44	Loam	CL	A-6, A-7-6	0	0	100	100	90-100	55-80	30-44	11-22
	44-53	Loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	40-52	23-37	6-16
	53-68	Loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	90-100	40-52	23-37	6-16
Elmer-----	68-80	Sandy loam	SC-SM, SM	A-2	0	0	100	99-100	80-90	16-32	10-18	NP-5
	0-6	Fine sandy loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	50-60	20-30	3-10
	6-9	Fine sandy loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	50-60	20-30	3-10
	9-19	Fine sandy loam	CL, ML, CL-ML	A-4	0	0	100	100	90-100	50-60	20-30	3-10
	19-26	Fine sandy loam	SC, CL	A-6	0	0	100	98-100	90-100	45-60	25-35	10-20
	26-37	Fine sandy loam	SC, CL	A-6	0	0	100	98-100	90-100	45-60	25-35	10-20
	37-43	Loam	CL	A-6, A-7-6	0	0	99-100	98-100	90-100	65-85	30-45	15-25
	43-51	Clay loam	CL	A-6, A-7-6	0	0	99-100	98-100	90-100	65-85	30-45	15-25
	51-61	Fine sandy loam	CL, SC-SM, SC, CL-ML	A-2-4, A-2-6, A-4, A-6	0	0	98-100	97-100	85-95	34-55	20-30	6-16
	61-72	Fine sandy loam	SC-SM, SC, CL-ML, CL	A-2-4, A-2-6, A-4, A-6	0	0	98-100	97-100	85-95	34-55	20-30	6-16
	72-80	Fine sandy loam	SC, CL-ML, CL, SC-SM	A-2-4, A-2-6, A-4, A-6	0	0	98-100	97-100	85-95	34-55	20-30	6-16
1555: Dillhut-----	0-4	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	80-100	5-15	0-0	NP
	4-9	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	80-100	5-15	0-0	NP
	9-18	Fine sand	SP-SM, SM	A-2-4, A-3	0	0	100	100	80-100	5-15	0-0	NP
	18-26	Fine sand	SP-SM, SM	A-2-4, A-3	0	0	100	100	80-100	5-15	0-0	NP
	26-41	Fine sandy loam	SC-SM, CL, SC	A-6	0	0	100	100	80-100	36-55	30-40	10-20
	41-55	Fine sandy loam	SC, CL, CL- ML, SC-SM	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	55-65	Fine sandy loam	CL-ML, CL, SC, SC-SM	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	65-70	Fine sandy loam	CL-ML, SC-SM, CL, SC	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	70-80	Fine sandy loam	SC, SC-SM, SM, SP-SC, SP-SM	A-2-4	0	0	100	100	50-70	5-25	22-30	NP-10
Plev-----	0-4	Loamy fine sand	SP-SM	A-2-4, A-3	0	0	100	100	80-100	5-10	0-19	NP-3
	4-12	Fine sand	SP-SM	A-3	0	0	100	100	80-100	5-10	0-0	NP
	12-35	Fine sand	SP-SM	A-3	0	0	100	100	80-100	5-10	0-0	NP
	35-46	Fine sand	SP-SM	A-3	0	0	100	100	80-100	5-10	0-0	NP
	46-57	Fine sandy loam	SC, SC-SM	A-2-4, A-2-6, A-4, A-6	0	0	100	100	80-95	30-45	20-35	5-15
	57-75	Fine sandy loam	SC-SM, SC	A-2-4, A-2-6, A-4, A-6	0	0	100	100	80-95	30-45	20-35	5-15
	75-80	Loamy fine sand	SP-SM	A-2-4, A-3	0	0	100	100	50-70	5-10	0-0	NP
1556: Dillhut-----	0-4	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	80-100	5-15	0-0	NP
	4-9	Fine sand	SP-SM, SM	A-2, A-3	0	0	100	100	80-100	5-15	0-0	NP
	9-18	Fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	80-100	5-15	0-0	NP
	18-26	Fine sand	SP-SM, SM	A-2-4, A-3	0	0	100	100	80-100	5-15	0-0	NP
	26-41	Fine sandy loam	CL, SC, SC-SM	A-6	0	0	100	100	80-100	36-55	30-40	10-20
	41-55	Fine sandy loam	CL-ML, SC, SC-SM, CL	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	55-65	Fine sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	65-70	Fine sandy loam	CL-ML, SC, SC-SM, CL	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	70-80	Fine sandy loam	SP-SM, SC-SM, SC, SM, SP- SC	A-2-4	0	0	100	100	50-70	5-25	22-30	NP-10
Solvay-----	0-5	Fine sandy loam	SM, SC-SM, CL-ML, SC	A-2-4, A-4	0	0	100	100	80-100	25-49	20-30	3-10
	5-14	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	14-23	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	23-37	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	37-58	Fine sandy loam	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10
	58-76	Loamy fine sand	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10
	76-80	Loamy fine sand	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10

ENGINEERING INDEX PROPERTIES--Continued  
Stafford 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		
1725: Farnum-----	0-5	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	60-85	20-35	5-15	
	5-15	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	60-85	20-35	5-15	
	15-21	Loam	CL	A-6	0	0	100	100	85-100	60-80	30-40	10-15	
	21-34	Sandy clay loam	SC, CL	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30	
	34-48	Loam	SC, CL	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30	
	48-61	Clay loam	SC, CL	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30	
	61-73	Clay loam	SC, CL	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30	
	73-80	Loam	SC, CL, SC- SM, CL-ML	A-2, A-4, A-6	0	0	100	95-100	65-100	30-80	20-35	5-15	
	Funmar-----	0-6	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-85	25-35	5-15
		6-12	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-85	25-35	5-15
12-17		Loam	CL, ML	A-6, A-4, A- 7-6	0	0	100	100	85-100	60-80	30-45	7-20	
17-26		Clay loam	CL, ML	A-6, A-4, A- 7-6	0	0	100	100	85-100	60-80	30-45	7-20	
26-32		Loam	CL, ML	A-6, A-4, A- 7-6	0	0	100	100	85-100	60-80	30-45	7-20	
32-38		Silty clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	75-100	40-50	20-30	
38-54		Silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-100	45-60	25-35	
54-66		Silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-100	45-60	25-35	
66-80		Silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-100	45-60	25-35	
1726: Farnum-----		0-5	Loam	CL-ML, CL	A-6, A-4	0	0	100	100	90-100	60-85	20-35	5-15
	5-15	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	60-85	20-35	5-15	
	15-21	Loam	CL	A-6	0	0	100	100	85-100	60-80	30-40	10-15	
	21-34	Sandy clay loam	SC, CL	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30	
	34-48	Loam	SC, CL	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30	
	48-61	Clay loam	SC, CL	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30	
	61-73	Clay loam	SC, CL	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30	
	73-80	Loam	SC, CL, SC- SM, CL-ML	A-2, A-4, A-6	0	0	100	95-100	65-100	30-80	20-35	5-15	
	Funmar-----	0-6	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-85	25-35	5-15
		6-12	Loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-85	25-35	5-15
12-17		Loam	CL, ML	A-6, A-4, A- 7-6	0	0	100	100	85-100	60-80	30-45	7-20	
17-26		Clay loam	CL, ML	A-6, A-4, A- 7-6	0	0	100	100	85-100	60-80	30-45	7-20	
26-32		Loam	CL, ML	A-6, A-4, A- 7-6	0	0	100	100	85-100	60-80	30-45	7-20	
32-38		Silty clay loam	CL	A-6, A-7-6	0	0	100	100	90-100	75-100	40-50	20-30	
38-54		Silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-100	45-60	25-35	
54-66		Silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-100	45-60	25-35	
66-80		Silty clay loam	CL, SC	A-7-6	0	0	100	100	90-100	85-100	45-60	25-35	
1985: Hayes-----		0-8	Fine sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	80-95	30-49	20-25	4-7
	8-14	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
	14-23	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-4, A-2-4	0	0	100	100	80-95	30-55	21-28	3-10	
	23-34	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
	34-42	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
	42-47	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
	47-56	Sandy clay loam	CL	A-6	0	0	100	100	80-100	60-85	30-35	11-15	
	56-69	Silty clay	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35	
	69-80	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35	
	1986: Hayes-----	0-8	Loamy fine sand	SM	A-2	0	0	100	100	75-95	15-30	0-0	NP
8-14		Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
14-23		Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
23-34		Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
34-42		Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
42-47		Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10	
47-56		Sandy clay loam	CL	A-6	0	0	100	100	80-100	60-85	30-35	11-15	
56-69		Silty clay	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35	
69-80		Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35	
Solvay-----		0-5	Loamy fine sand	SC-SM, SM	A-2-4	0	0	100	100	85-100	15-30	10-20	NP-5
	5-14	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15	
	14-23	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15	
	23-37	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15	
	37-58	Fine sandy loam	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10	
	58-76	Loamy fine sand	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10	
	76-80	Loamy fine sand	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10	



ENGINEERING INDEX PROPERTIES--Continued  
Stafford 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	
1987: Hayes-----	0-8	Loamy fine sand	SM	A-2	0	0	100	100	75-95	15-30	0-0	NP
	8-14	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
	14-23	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
	23-34	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
	34-42	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
	42-47	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
	47-56	Sandy clay loam	CL	A-6	0	0	100	100	80-100	60-85	30-35	11-15
	56-69	Silty clay	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
	69-80	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
	Turon-----	0-8	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	80-100	5-25	0-0
8-28		Loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	80-100	10-25	0-20	NP-3
28-40		Stratified loamy fine sand to fine sandy loam	SC-SM, SM, SP-SM, SP-SC	A-2-4	0	0	100	100	80-100	10-30	0-23	NP-6
40-58		Silty clay	CL, CH	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
58-75		Silty clay	CH, CL	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
75-80		Silty clay	CH, CL	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
0-8		Fine sandy loam	SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	20-25	4-7
8-14		Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
14-23		Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
23-34		Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
1988: Hayes-----	34-42	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
	42-47	Fine sandy loam	SC, SC-SM, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	21-28	3-10
	47-56	Sandy clay loam	CL	A-6	0	0	100	100	80-100	60-85	30-35	11-15
	56-69	Silty clay	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
	69-80	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
	0-4	Sandy loam	SM, SC, SC-SM	A-2, A-4	0	0	95-100	90-100	70-100	10-40	0-25	NP-10
	4-9	Loamy fine sand	SC, SC-SM, SM	A-2, A-4	0	0	95-100	90-100	70-100	10-40	0-25	NP-10
	9-17	Loamy fine sand	SM, SC, SC-SM	A-2, A-4	0	0	95-100	90-100	50-85	10-30	0-25	NP-10
	17-33	Loamy fine sand	SM, SC-SM, SP-SM, SP-SC	A-2, A-3, A-4	0	0	90-100	85-100	65-100	5-25	0-20	NP-5
	33-80	Sand	SM, SC-SM, SP-SM, SP-SC	A-2, A-3, A-4	0	0	90-100	85-100	65-100	5-25	0-20	NP-5
Ninnescah-----	0-6	Sandy loam	SC, SC-SM, SM	A-2-4, A-2-6, A-4, A-6	0	0	100	100	70-100	20-49	15-34	NP-15
	6-14	Sandy loam	SM, SC, SC-SM	A-2-4, A-2-6, A-4, A-6	0	0	100	100	70-100	20-49	15-34	NP-15
	14-19	Sandy loam	SM, SC-SM, SC	A-6, A-2-4, A-2-6, A-4	0	0	100	100	70-100	20-49	15-34	NP-15
	19-30	Sandy loam	SC, SC-SM, SM	A-2-4, A-4	0	0	100	95-100	70-100	30-49	15-26	NP-10
	30-37	Sandy loam	SC, SM, SC-SM	A-2-4, A-4	0	0	100	95-100	70-100	30-49	15-26	NP-10
	37-52	Sandy loam	SP-SM, SC-SM, SM, SP-SC	A-2-4, A-3	0	0	100	90-100	60-90	5-35	0-20	NP-6
	52-80	Loamy sand	SC-SM, SM, SP-SM, SP-SC	A-2-4, A-3	0	0	100	90-100	60-90	5-35	0-20	NP-6
	0-8	Fine sand	SP-SM, SM	A-2-4, A-3	0	0	100	100	80-100	5-25	0-0	NP
	8-47	Stratified sand to loamy sand	SP-SM, SM	A-2-4, A-3	0	0	100	100	80-100	5-25	0-0	NP
	47-64	Fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	80-100	5-20	0-0	NP
2958: Ninnescah-----	64-80	Stratified sand to loamy sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	80-100	5-25	0-0	NP
	0-6	Fine sandy loam	SM, SC-SM, SC	A-2-6, A-4, A-6, A-2-4	0	0	100	100	70-100	20-49	15-34	NP-15
	6-14	Sandy loam	SM, SC, SC-SM	A-2-4, A-2-6, A-4, A-6	0	0	100	100	70-100	20-49	15-34	NP-15
	14-19	Sandy loam	SC, SC-SM, SM	A-2-4, A-2-6, A-4, A-6	0	0	100	100	70-100	20-49	15-34	NP-15
	19-30	Sandy loam	SC-SM, SC, SM	A-2-4, A-4	0	0	100	95-100	70-100	30-49	15-26	NP-10
	30-37	Sandy loam	SC-SM, SM, SC	A-2-4, A-4	0	0	100	95-100	70-100	30-49	15-26	NP-10
	37-52	Sandy loam	SP-SM, SC-SM, SM	A-2-4, A-3	0	0	100	90-100	60-90	5-35	0-20	NP-6
	52-80	Loamy sand	SM, SP-SM, SC-SM	A-2-4, A-3	0	0	100	90-100	60-90	5-35	0-20	NP-6

ENGINEERING INDEX PROPERTIES--Continued  
Stafford County, Kansas

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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	
3053: Ost-----	In											
	0-8	Loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	85-95	60-75	20-35	5-15
	8-12	Loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	60-80	30-45	10-20
	12-18	Loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	60-80	30-45	10-20
	18-23	Clay loam	CL, SC	A-6, A-7	0	0	95-100	90-100	80-100	35-80	30-45	10-20
	23-38	Clay loam	CL, SC, SC- SM, CL-ML	A-2, A-4, A-6	0	0	85-100	85-100	60-100	30-80	20-40	5-20
	38-54	Loam	CL, SC, SC- SM, CL-ML	A-2, A-4, A-6	0	0	85-100	85-100	60-100	30-80	20-40	5-20
	54-80	Loam	CL, SC, SC- SM, CL-ML	A-2, A-4, A-6	0	0	85-100	85-100	60-100	30-80	20-40	5-20
3180: Pratt-----												
	0-8	Fine sand	SP-SM, SM	A-2, A-3	0	0	100	95-100	65-100	5-35	0-14	NP
	8-24	Loamy fine sand	SM, SC-SM	A-2, A-4	0	0	100	95-100	90-100	15-40	0-20	NP-6
	24-64	Stratified fine sand to loamy fine sand	SM, SC-SM	A-2, A-4	0	0	100	95-100	90-100	15-40	0-20	NP-6
	64-80	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	0-14	NP
3181: Pratt-----												
	0-8	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	65-100	5-35	0-14	NP
	8-24	Loamy fine sand	SM, SC-SM	A-2, A-4	0	0	100	95-100	90-100	15-40	0-20	NP-6
	24-64	Stratified fine sand to loamy fine sand	SM, SC-SM	A-2, A-4	0	0	100	95-100	90-100	15-40	0-20	NP-6
	64-80	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	0-14	NP
Turon-----												
	0-8	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	80-100	5-25	0-0	NP
	8-28	Loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	80-100	10-25	0-20	NP-3
	28-40	Stratified loamy fine sand to fine sandy loam	SP-SM, SC-SM, SM	A-2-4	0	0	100	100	80-100	10-30	0-23	NP-6
	40-58	Silty clay	CH, CL	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
	58-75	Silty clay	CH, CL	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
	75-80	Silty clay	CH, CL	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
3511: Saltcreek-----												
	0-5	Fine sandy loam	SM, SC-SM, CL-ML, ML	A-2-4, A-4	0	0	100	100	80-95	30-55	20-30	1-7
	5-10	Sandy clay loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	80-95	30-55	20-30	1-7
	10-26	Sandy clay loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-20
	26-39	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-20
	39-56	Silty clay	CH, CL	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
	56-66	Silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
	66-80	Silty clay loam	CH, CL	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
Naron, sandy substratum----	0-7	Fine sandy loam	SC, SC-SM, CL-ML	A-4	0	0	100	100	70-85	35-55	10-20	5-10
	7-19	Fine sandy loam	SC, SC-SM, CL-ML	A-4	0	0	100	100	70-85	35-55	10-20	5-10
	19-34	Loam	CL	A-4, A-6	0	0	100	100	80-95	50-70	30-35	10-15
	34-41	Sandy clay loam	CL	A-6	0	0	100	100	80-90	50-70	30-35	10-15
	41-61	Stratified loam to loamy fine sand to fine sandy loam	SM, SC-SM, SC	A-2, A-4	0	0	100	95-100	60-90	20-50	0-25	NP-10
	61-80	Coarse sand	SM	A-2-4	0	0	100	85-95	45-65	15-35	0-0	NP
3512: Saltcreek-----												
	0-5	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	80-95	30-55	20-30	1-7
	5-10	Sandy clay loam	SC-SM, ML, SM, CL-ML	A-2-4, A-4	0	0	100	100	80-95	30-55	20-30	1-7
	10-26	Sandy clay loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-20
	26-39	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-20
	39-56	Silty clay	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
	56-66	Silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
	66-80	Silty clay loam	CH, CL	A-7-6	0	0	100	100	90-100	85-99	45-55	25-35
Naron-----	0-8	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	100	100	60-85	30-55	0-25	NP-7
	8-14	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	100	60-85	30-55	0-25	NP-7
	14-28	Sandy clay loam	CL, SC	A-6	0	0	100	100	60-90	35-55	30-35	10-15
	28-39	Sandy clay loam	SC, CL	A-6	0	0	100	100	60-90	35-55	30-35	10-15
	39-55	Sandy clay loam	SC, CL	A-6	0	0	100	100	60-90	35-55	30-35	10-15
	55-66	Fine sandy loam	SC-SM, SM, SC	A-2, A-4	0	0	100	100	60-90	20-50	0-25	NP-10
	66-80	Loamy fine sand	SM, SC, SC-SM	A-2, A-4	0	0	100	100	60-90	20-50	0-25	NP-10
3520: Saxman-----												
	0-4	Loamy sand	SM	A-2-4	0	0	100	95-100	75-100	15-30	0-0	NP
	4-8	Loamy sand	SM	A-2-4	0	0	100	95-100	75-100	15-30	0-0	NP
	8-13	Loamy sand	SM	A-2-4	0	0	99-100	95-100	75-100	15-30	0-0	NP
	13-22	Loamy sand	SP-SM, SM	A-2-4, A-3	0	0	100	95-100	75-95	8-30	0-0	NP
	22-30	Sand	SM, SP-SM	A-2-4, A-3	0	0	99-100	95-100	75-95	8-30	0-0	NP
	30-37	Sand	SP-SM, SM, SP	A-2-4, A-3	0	0	85-100	80-95	65-85	1-15	0-0	NP
	37-48	Sand	SM, SP, SP-SM	A-2-4, A-3	0	0	85-100	80-97	65-85	1-15	0-0	NP
	48-54	Fine sand	SP, SP-SM, SM	A-2-4, A-3	0	0	85-100	80-95	65-85	1-15	0-0	NP
	54-80	Stratified gravelly coarse sand	SP-SM, SP	A-1-b, A-2-4, A-3	0	0	85-100	75-95	35-55	1-10	0-0	NP

ENGINEERING INDEX PROPERTIES--Continued  
Stafford 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	
3540: Solvay-----	0-5	Loamy fine sand	SC-SM, SM	A-2-4	0	0	100	100	85-100	15-30	10-20	NP-5
	5-14	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	14-23	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	23-37	Fine sandy loam	CL, SC	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	37-58	Fine sandy loam	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10
	58-76	Loamy fine sand	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10
	76-80	Loamy fine sand	CL, CL-ML, SC, SC-SM	A-4	0	0	100	100	55-100	20-52	20-30	5-10
	3639: Taver-----	0-7	Loam	CL	A-4, A-6	0	0	100	100	96-100	65-85	28-34
7-17	Silty clay loam	CH, CL	A-7-6	0	0	100	100	96-100	90-99	48-60	30-40	
17-33	Silty clay	CH, CL	A-7-6	0	0	100	100	96-100	90-99	48-60	30-40	
33-53	Silty clay loam	CH, CL	A-7-6	0	0	100	100	96-100	90-99	48-60	30-40	
53-64	Clay loam	CL	A-4, A-6	0	0	100	100	90-100	60-80	30-40	15-20	
64-80	Sandy clay loam	CL	A-4, A-6	0	0	100	100	90-100	60-80	30-40	15-20	
3640: Tivin-----	0-7	Fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	90-100	5-25	0-0	NP
	7-18	Fine sand	SP-SM, SM	A-2-4, A-3	0	0	100	100	80-100	5-25	0-0	NP
	18-80	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	80-100	5-25	0-0	NP
3641: Tivin-----	0-7	Fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	90-100	5-25	0-0	NP
	7-18	Fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	80-100	5-25	0-0	NP
	18-80	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	80-100	5-25	0-0	NP
Dillhut-----	0-4	Fine sand	SP-SM, SM	A-2, A-3	0	0	100	100	80-100	5-15	0-0	NP
	4-9	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	80-100	5-15	0-0	NP
	9-18	Fine sand	SP-SM, SM	A-2-4, A-3	0	0	100	100	80-100	5-15	0-0	NP
	18-26	Fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	80-100	5-15	0-0	NP
	26-41	Fine sandy loam	SC, CL	A-6	0	0	100	100	80-100	36-55	30-40	10-20
	41-55	Fine sandy loam	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	55-65	Fine sandy loam	CL-ML, SC-SM, CL, SC	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	65-70	Fine sandy loam	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6	0	0	100	100	80-95	30-55	26-32	7-11
	70-80	Fine sandy loam	SP-SM, SP-SC, SM, SC-SM, SC	A-2-4	0	0	100	100	50-70	5-25	22-30	NP-10
	3644: Turon-----	0-8	Fine sand	SP-SM, SM	A-2, A-3	0	0	100	100	80-100	5-25	0-0
8-28	Loamy fine sand	SP-SM, SM	A-2-4	0	0	100	100	80-100	10-25	0-20	NP-3	
28-40	Stratified loamy fine sand to fine sandy loam	SP-SM, SC-SM, SP-SC, SM	A-2-4	0	0	100	100	80-100	10-30	0-23	NP-6	
Carway-----	40-58	Silty clay	CH, CL	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
	58-75	Silty clay	CL, CH	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
	75-80	Silty clay	CL, CH	A-6, A-7-6	0	0	100	100	80-100	80-99	36-52	16-25
	0-7	Loamy fine sand	SC-SM, SM	A-2-4	0	0	100	100	85-100	15-30	10-20	NP-5
	7-10	Sandy clay loam	SC, CL	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	10-15	Sandy clay loam	SC, CL	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	15-22	Fine sandy loam	SC, CL	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	22-35	Fine sandy loam	SC, CL	A-6	0	0	100	100	85-100	45-60	25-35	10-15
	35-40	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-60	25-40
	40-54	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-60	25-40
54-63	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-60	25-40	
63-72	Clay loam	CL, CH	A-7-6	0	0	100	100	90-100	85-99	45-60	25-40	
72-80	Clay loam	SC, CL	A-6	0	0	100	100	75-90	45-60	25-35	10-15	
3926: Water-----	---	---	---	---	---	---	---	---	---	---	---	
An: Albion-----	0-10	Sandy loam	ML, SM	A-2, A-4	0	0	100	75-100	60-90	25-55	15-30	NP-5
10-20	Sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	45-90	30-55	20-35	NP-10	
20-30	Coarse sandy loam	SM	A-1, A-2	0	0	85-100	75-90	40-70	15-30	15-30	NP-5	
30-60	Gravelly coarse sand	GM, GP-GM, SM, SP-SM	A-1, A-2, A-3	0	0-5	40-100	40-90	30-70	5-30	15-30	NP-5	
At: Attica-----	0-10	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-20	NP-4
10-21	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	
21-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	85-100	80-100	70-100	20-50	15-26	NP-7	
Ba: Blanket-----	0-10	Silt loam	CL	A-6	0	0	98-100	96-100	85-100	65-95	28-40	11-20
10-52	Silty clay	CH, CL	A-7	0	0	98-100	96-100	85-100	70-90	41-64	20-38	
52-60	Silty clay loam	CH, CL	A-6, A-7	0	0	85-100	80-100	80-100	51-85	30-60	15-38	
BIG: Big Salt Marsh- Ca: Carwile-----	---	---	---	---	---	---	---	---	---	---	---	
0-10	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	
10-18	Sandy clay loam	CL, SC	A-7, A-6	0	0	100	100	90-100	36-90	35-50	14-26	
18-46	Clay	CH, CL, SC	A-6, A-7	0	0	100	100	90-100	40-95	35-70	14-38	
46-60	Clay	CH, CL, SC	A-4, A-6, A-7	0	0	100	100	90-100	36-95	25-70	7-38	

ENGINEERING INDEX PROPERTIES--Continued  
Stafford County, Kansas

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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	
Cw: Carwile-----	0-7	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
	7-14	Sandy clay loam	CL, SC	A-6, A-7	0	0	100	100	90-100	36-90	35-50	14-26
	14-38	Sandy clay	CH, CL, SC	A-6, A-7	0	0	100	100	90-100	40-95	35-70	14-38
	38-60	Sandy clay loam	CH, CL, SC	A-4, A-6, A-7	0	0	100	100	90-100	36-95	25-70	7-38
Cx: Clark-----	0-8	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	50-90	20-40	5-20
	8-60	Loam	CL	A-6	0	0	100	95-100	90-100	55-90	25-40	10-25
Dp: Dillwyn-----	0-8	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	70-90	5-35	---	NP
	8-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-35	---	NP
Plevna-----	0-12	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-26	NP-6
	12-38	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	30-50	15-26	NP-6
	38-60	Fine sand	SM, SP	A-2, A-3	0	0	100	90-100	50-90	4-35	---	NP
Dt: Dillwyn-----	0-8	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	70-90	5-35	---	NP
	8-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	70-90	5-35	---	NP
Tivoli-----	0-10	Loamy fine sand	SM	A-2	0	0	100	95-100	90-100	15-35	---	NP
	10-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-25	---	NP
Fa: Farnum-----	0-14	Fine sandy loam	ML, SM	A-2, A-4	0	0	100	100	70-100	30-55	15-30	NP-5
	14-22	Loam	CL	A-6	0	0	100	100	85-100	60-80	30-40	10-15
	22-46	Clay loam	CL, SC	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30
	46-60	Loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	100	95-100	65-100	30-80	20-35	5-15
Fr: Farnum-----	0-9	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	60-85	20-35	5-15
	9-22	Loam	CL	A-6	0	0	100	100	85-100	60-80	30-40	10-15
	22-46	Clay loam	CL, SC	A-6, A-7-6	0	0	100	100	70-100	45-80	35-50	15-30
	46-60	Clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	100	95-100	65-100	30-80	20-35	5-15
GRP: Gravel Pits----	---	---	---	---	---	---	---	---	---	---	---	---
INT: Aquolls-----	0-72	Variable			---	---	---	---	---	---	---	---
Kg: Kingman-----	0-10	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	13-26
	10-50	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	13-26
	50-60	Sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	95-100	90-100	40-90	15-40	5-20
M-W: Miscellaneous Water-----	---	---	---	---	---	---	---	---	---	---	---	---
Na: Naron-----	0-7	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	25-60	15-26	1-7
	7-44	Sandy clay loam	CL, SC	A-4, A-6	0	0	100	95-100	80-100	36-60	26-40	8-18
	44-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	20-50	15-26	NP-7
NAA: Naron-----	0-14	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	25-60	15-26	1-7
	14-40	Fine sandy loam	CL, SC	A-4, A-6	0	0	100	95-100	80-100	36-60	26-40	8-18
	40-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	20-50	15-26	NP-7
NBB: Naron-----	0-14	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	25-60	15-26	1-7
	14-40	Sandy clay loam	CL, SC	A-4, A-6	0	0	100	95-100	80-100	36-60	26-40	8-18
	40-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	20-50	15-26	NP-7
Nu: Natrustolls----	0-10	Fine sandy loam	CL, ML, SC, SM	A-4	0	0	100	98-100	94-100	36-60	15-30	NP-10
	10-25	Clay loam, silty clay loam	CH, CL	A-6, A-7	0	0	100	100	96-100	80-98	35-60	15-35
	25-60				---	---	---	---	---	---	---	---
Pa: Plevna-----	0-12	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-26	NP-6
	12-38	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	30-50	15-26	NP-6
	38-60	Fine sand	SM, SP	A-2, A-3	0	0	100	90-100	50-90	4-35	---	NP
Pc: Plevna-----	0-12	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	20-50	15-26	NP-6
	12-38	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	30-50	15-26	NP-6
	38-60	Fine sand	SM, SP	A-2, A-3	0	0	100	90-100	50-90	4-35	---	NP
Ph: Pratt-----	0-8	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	8-28	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	28-60	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	---	NP
Po: Pratt-----	0-8	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	8-28	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	28-60	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	---	NP

ENGINEERING INDEX PROPERTIES--Continued  
Stafford County, Kansas

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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	
Pr:												
Pratt-----	0-8	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	8-28	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	28-60	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	80-100	5-35	---	NP
Carwile-----	0-7	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
	7-14	Sandy clay loam	CL, SC	A-6, A-7	0	0	100	100	90-100	36-90	35-50	14-26
	14-38	Sandy clay	CH, CL, SC	A-6, A-7	0	0	100	100	90-100	40-95	35-70	14-38
	38-60	Sandy clay loam	CH, CL, SC	A-4, A-6, A-7	0	0	100	100	90-100	36-95	25-70	7-38
Pt:												
Pratt-----	0-8	Loamy fine sand	SM	A-2	0	0	100	95-100	70-100	15-35	---	NP
	8-28	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	90-100	15-40	15-20	NP-6
	28-60	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
Ta:												
Tabler-----	0-7	Loam	CL, CL-ML, ML	A-4	0	0	100	100	96-100	65-97	22-31	2-10
	7-48	Clay	CH, CL	A-7	0	0	100	100	96-100	90-99	41-65	18-35
	48-60	Clay	CH, CL	A-6, A-7	0	0	96-100	96-100	92-100	80-99	38-60	15-35
TAA:												
Tabler-----	0-10	Clay loam	CL	A-6, A-7	0	0	100	100	96-100	80-98	32-43	11-20
	10-40	Silty clay	CH, CL	A-7	0	0	100	100	96-100	90-99	41-65	18-35
	40-60	Silty clay	CH, CL	A-6, A-7	0	0	96-100	96-100	92-100	80-99	38-60	15-35
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
W:												
Water-----	---	---	---	---	---	---	---	---	---	---	---	---
Wa:												
Waldeck-----	0-12	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	25-55	15-25	NP-5
	12-30	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	70-100	30-50	15-25	NP-5
	30-60	Fine sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	80-100	40-60	1-35	---	NP
Za:												
Zenda-----	0-20	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	55-80	25-40	5-20
	20-60	Loam	CL	A-6	0	0	100	95-100	85-100	55-80	25-40	10-25
Natrustolls----	0-10	Fine sandy loam	CL, ML, SC, SM	A-4	0	0	100	98-100	94-100	36-60	15-30	NP-10
	10-25	Variable	CH, CL	A-6, A-7	0	0	100	100	96-100	80-98	35-60	15-35
	25-60	Variable			---	---	---	---	---	---	---	---
ZSS:												
Zenda-----	0-14	Clay loam	CL	A-6	0	0	100	95-100	85-100	55-80	30-40	10-20
	14-60	Clay loam	CL	A-6	0	0	100	95-100	85-100	55-80	25-40	10-25
Drummond-----	0-8	Clay loam	CL	A-6, A-7	0	0	100	100	96-100	80-98	37-50	15-26
	8-30	Clay	CH, CL	A-6, A-7	0	0	100	100	96-100	80-98	35-60	15-35
	30-60	Variable			---	---	---	---	---	---	---	---

PHYSICAL PROPERTIES OF THE SOILS  
Stafford County, Kansas: Published

## Physical Properties

This 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 earthmoving 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.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K-sat). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), 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 this 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 this table as the K factor (Kw and Kf) 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 Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf 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.

PHYSICAL PROPERTIES OF THE SOILS  
Stafford County, Kansas: Published

(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					

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.

PHYSICAL PROPERTIES OF THE SOILS  
Stafford County, Kansas: Published

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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		
009DT:														
Dillwyn-----	0-8	79	16	2-8	1.50-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-2.0	.17	.17	5	2	134
	8-60	79	16	2-8	1.50-1.60	5.95-19.98	0.06-0.10	0.0-2.9	---	.17	.17			
Tivoli-----	0-6	93	1	1-10	1.35-1.50	5.95-19.98	0.02-0.08	0.0-2.9	0.0-1.0	.17	.17	5	1	250
	6-60	93	1	1-10	1.50-1.70	5.95-19.98	0.02-0.08	0.0-2.9	---	.17	.17			
009TV:														
Tivoli-----	0-6	93	1	1-10	1.35-1.50	5.95-19.98	0.02-0.08	0.0-2.9	0.0-1.0	.17	.17	5	1	250
	6-60	93	1	1-10	1.50-1.70	5.95-19.98	0.02-0.08	0.0-2.9	---	.17	.17			
047CS:														
Carwile-----	0-11	62	26	5-18	1.30-1.65	0.60-2.00	0.11-0.20	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	11-17	54	14	25-39	1.45-1.75	0.20-2.00	0.12-0.20	3.0-5.9	---	.37	.37			
	17-42	23	29	35-60	1.35-1.75	0.06-0.20	0.12-0.20	6.0-8.9	---	.37	.37			
	42-60	35	33	20-45	1.35-1.75	0.20-2.00	0.12-0.20	6.0-8.9	---	.32	.32			
Drummond-----	0-8	66	20	10-18	1.30-1.60	2.00-6.00	0.08-0.11	0.0-2.9	0.5-1.0	.32	.32	2	4L	86
	8-30	25	27	35-60	1.40-1.65	0.00-0.06	0.09-0.17	6.0-8.9	---	.55	.55			
	>30			---	---	---	---	---	---	---	---			
151KP:														
Kanza-----	0-11	86	7	3-12	1.50-1.70	5.95-19.98	0.08-0.13	0.0-2.9	1.0-3.0	.17	.17	5	2	134
	11-40	92	1	1-12	1.50-1.70	5.95-19.98	0.06-0.11	0.0-2.9	---	.17	.20			
Plevna-----	0-10	67	20	8-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20	5	3	86
	10-40	67	20	8-18	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	---	.20	.20			
	40-60	95	1	1-7	1.50-1.60	2.00-6.00	0.05-0.07	0.0-2.9	---	.20	.20			
159DP:														
Dillwyn-----	0-9	79	16	2-8	1.50-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-2.0	.17	.17	5	2	134
	9-60	79	16	2-8	1.50-1.60	5.95-19.98	0.06-0.10	0.0-2.9	---	.17	.17			
Plevna-----	0-10	79	16	2-8	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	1.0-4.0	.17	.17	5	2	134
	10-33	67	20	8-18	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	---	.20	.20			
	33-60	95	1	1-7	1.50-1.60	2.00-6.00	0.05-0.07	0.0-2.9	---	.20	.20			
159DT:														
Dillwyn-----	0-9	79	16	2-8	1.50-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-2.0	.17	.17	5	2	134
	9-60	94	1	2-8	1.50-1.60	5.95-19.98	0.06-0.10	0.0-2.9	---	.17	.17			
Tivoli-----	0-7	93	1	1-10	1.35-1.50	5.95-19.98	0.02-0.08	0.0-2.9	0.0-1.0	.17	.17	5	1	250
	7-60	93	1	1-10	1.50-1.70	5.95-19.98	0.02-0.08	0.0-2.9	---	.17	.17			
159DU:														
Drummond-----	0-8	18	52	27-32	1.30-1.60	0.20-0.60	0.13-0.20	3.0-5.9	0.5-1.0	.43	.43	2	4L	38
	8-35	6	46	35-60	1.40-1.65	0.00-0.06	0.09-0.17	6.0-8.9	---	.55	.55			
	35-60			---	---	---	---	---	---	---	---			
159PE:														
Plevna-----	0-10	67	20	8-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20	5	3	86
	10-33	67	20	8-18	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	---	.20	.20			
	33-60	95	1	1-7	1.50-1.60	2.00-6.00	0.05-0.07	0.0-2.9	---	.20	.20			
990:														
Abbyville----	0-8	41	39	15-25	1.30-1.55	0.60-2.00	0.17-0.19	0.0-2.9	1.0-3.0	.43	.43	2	6	48
	8-15	55	21	20-28	1.50-1.65	0.06-0.20	0.09-0.13	3.0-5.9	0.0-0.5	.43	.43			
	15-24	47	19	25-34	1.50-1.65	0.06-0.20	0.09-0.13	3.0-5.9	0.0-0.0	.32	.32			
	24-35	51	20	25-34	1.50-1.65	0.06-0.20	0.09-0.13	3.0-5.9	0.0-0.0	.32	.32			
	35-49	58	18	21-34	1.50-1.65	0.06-0.20	0.09-0.13	3.0-5.9	0.0-0.0	.32	.32			
	49-61	54	24	20-32	1.45-1.60	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.0	.28	.28			
	61-69	44	31	20-32	1.45-1.60	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.0	.28	.28			
	69-80	41	32	20-32	1.45-1.60	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.0	.28	.28			
991:														
Abbyville, rarely flooded-----	0-8	68	19	13-19	1.30-1.55	2.00-6.00	0.14-0.17	0.0-2.9	1.0-3.0	.32	.32	2	3	86
	8-15	55	21	20-28	1.50-1.65	0.06-0.20	0.09-0.13	3.0-5.9	0.0-0.5	.28	.28			
	15-24	47	19	25-34	1.50-1.65	0.06-0.20	0.09-0.13	3.0-5.9	0.0-0.0	.32	.32			
	24-35	51	20	25-34	1.50-1.65	0.06-0.20	0.09-0.13	3.0-5.9	0.0-0.0	.32	.32			
	35-49	58	18	21-34	1.50-1.65	0.06-0.20	0.09-0.13	3.0-5.9	0.0-0.0	.32	.32			
	49-61	54	24	20-32	1.45-1.60	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.0	.28	.28			
	61-69	44	31	20-32	1.45-1.60	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.0	.28	.28			
	69-80	41	32	20-32	1.45-1.60	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.0	.28	.28			
Kisiwa, occasionally flooded-----	0-4	51	29	18-26	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-4.0	.43	.43	2	6	48
	4-7	49	30	18-28	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-4.0	.32	.32			
	7-14	42	27	27-40	1.30-1.60	0.00-0.06	0.15-0.18	3.0-5.9	0.0-1.0	.37	.37			
	14-23	39	24	27-37	1.35-1.60	0.00-0.06	0.15-0.18	3.0-5.9	0.0-1.0	.37	.37			
	23-31	30	29	26-45	1.30-1.60	0.00-0.06	0.08-0.15	3.0-5.9	0.0-1.0	.37	.37			
	31-40	27	29	26-45	1.30-1.60	0.00-0.06	0.08-0.15	3.0-5.9	0.0-1.0	.37	.37			
	40-46	45	28	26-45	1.45-1.60	0.00-0.06	0.08-0.15	3.0-5.9	0.0-0.5	.37	.37			
	46-52	58	29	5-18	1.30-1.70	2.00-6.00	0.11-0.17	0.0-2.9	0.0-0.5	.20	.20			
	52-58	64	27	5-18	1.30-1.70	2.00-6.00	0.11-0.17	0.0-2.9	0.0-0.5	.20	.20			
	58-65	61	30	0-12	1.30-1.70	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.10	.10			
	65-80	97	3	0-12	1.30-1.40	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.10	.10			
1005:														
Albion-----	0-9	72	18	7-15	1.35-1.45	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.24	4	3	86
	9-16	80	7	10-18	1.45-1.55	2.00-6.00	0.12-0.18	0.0-2.9	1.0-2.0	.20	.24			
	16-27	84	5	10-18	1.45-1.55	2.00-6.00	0.12-0.18	0.0-2.9	1.0-2.0	.20	.24			
	27-48	87	6	4-15	1.45-1.60	2.00-6.00	0.09-0.12	0.0-2.9	0.0-0.5	.17	.20			
	48-80	90	7	2-10	1.50-1.65	5.95-19.98	0.03-0.10	0.0-2.9	0.0-0.0	.15	.32			



PHYSICAL PROPERTIES OF THE SOILS  
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Map symbol and soil name	Depth In	Sand Pct	Silt Pct	Clay Pct	Moist bulk density g/cc	Permea- bility (Ksat) in/hr	Available water capacity In/in	Linear extensi- bility Pct	Organic matter Pct	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
1011: Albion-----	0-9	72	18	7-15	1.35-1.45	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.24	4	3	86
	9-16	80	7	10-18	1.45-1.55	2.00-6.00	0.12-0.18	0.0-2.9	1.0-2.0	.20	.24			
	16-27	84	5	10-18	1.45-1.55	2.00-6.00	0.12-0.18	0.0-2.9	1.0-2.0	.20	.24			
	27-48	87	6	4-15	1.45-1.60	2.00-6.00	0.09-0.12	0.0-2.9	0.0-0.5	.17	.20			
	48-80	90	7	2-10	1.50-1.65	5.95-19.98	0.03-0.10	0.0-2.9	0.0-0.0	.15	.32			
Shellabarger-	0-7	64	27	8-12	1.35-1.50	2.00-6.00	0.13-0.21	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	7-11	59	24	17-27	1.45-1.60	0.60-2.00	0.16-0.18	0.0-2.9	0.0-1.2	.28	.32			
	11-19	64	13	18-27	1.45-1.60	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.28	.32			
	19-33	69	8	18-27	1.45-1.60	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.28	.32			
	33-47	80	4	3-18	1.50-1.65	0.60-2.00	0.05-0.16	0.0-2.9	0.0-0.0	.28	.32			
	47-59	86	3	3-18	1.50-1.65	0.60-2.00	0.05-0.16	0.0-2.9	0.0-0.0	.28	.32			
	59-73	89	2	3-18	1.50-1.65	0.60-2.00	0.05-0.16	0.0-2.9	0.0-0.0	.28	.32			
	73-80	90	3	3-18	1.50-1.65	0.60-2.00	0.05-0.16	0.0-2.9	0.0-0.0	.28	.32			
1324: Carway-----	0-7	67	20	10-16	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	7-10	61	18	20-29	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	10-15	61	18	20-29	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	15-22	62	19	18-29	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	22-35	62	19	18-29	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	35-40	34	37	28-45	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	40-54	33	32	30-45	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	54-63	29	31	30-45	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	63-72	30	32	30-45	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	72-80	35	33	15-34	1.45-1.65	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.28	.28			
Carbika-----	0-11	27	55	10-22	1.45-1.55	0.60-2.00	0.15-0.18	0.0-2.9	1.0-2.0	.24	.24	5	5	56
	11-15	30	30	35-42	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	15-22	30	32	35-42	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	22-34	34	32	21-35	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	34-41	34	32	21-35	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	41-60	35	33	21-35	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	60-80	34	32	21-35	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
1359: Clark-----	0-11	37	41	15-27	1.35-1.45	0.60-2.00	0.17-0.22	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	11-16	33	40	18-35	1.35-1.70	0.60-2.00	0.17-0.19	3.0-5.9	0.5-2.0	.32	.32			
	16-28	29	50	18-35	1.35-1.70	0.60-2.00	0.14-0.19	3.0-5.9	0.5-1.0	.32	.32			
	28-45	45	38	10-25	1.35-1.70	0.60-2.00	0.14-0.19	3.0-5.9	0.5-1.0	.32	.32			
	45-65	47	44	7-20	1.35-1.70	0.60-2.00	0.14-0.19	3.0-5.9	0.0-1.0	.32	.32			
	65-80	26	65	7-20	1.35-1.70	0.60-2.00	0.14-0.19	3.0-5.9	0.0-1.0	.32	.32			
Ost-----	0-8	35	44	10-27	1.40-1.54	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	48
	8-12	32	41	20-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	1.0-2.0	.32	.32			
	12-18	32	41	20-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	1.0-2.0	.32	.32			
	18-23	23	48	18-35	1.40-1.52	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.32	.32			
	23-38	26	47	5-30	1.40-1.65	0.20-0.60	0.13-0.19	0.0-2.9	0.0-0.6	.32	.37			
	38-54	33	44	5-30	1.40-1.65	0.20-0.60	0.13-0.19	0.0-2.9	0.0-0.5	.32	.37			
	54-80	44	35	5-30	1.40-1.65	0.20-0.60	0.13-0.19	0.0-2.9	0.0-0.5	.32	.37			
1553: Darlow-----	0-5	42	48	8-20	1.30-1.55	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	5-8	36	53	8-20	1.30-1.70	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32			
	8-14	32	47	20-30	1.30-1.45	0.20-0.60	0.09-0.13	3.0-5.9	1.0-3.0	.28	.28			
	14-20	26	46	20-30	1.30-1.45	0.20-0.60	0.09-0.13	3.0-5.9	0.8-3.0	.28	.28			
	20-26	30	44	20-30	1.30-1.45	0.20-0.60	0.09-0.13	3.0-5.9	0.2-3.0	.28	.28			
	26-33	34	42	20-35	1.30-1.50	0.00-0.06	0.09-0.13	0.0-2.9	0.0-2.0	.28	.28			
	33-44	38	38	20-35	1.30-1.50	0.00-0.06	0.09-0.13	0.0-2.9	0.0-2.0	.28	.28			
	44-53	39	36	12-27	1.30-1.60	0.20-0.60	0.10-0.16	0.0-2.9	0.0-1.0	.24	.24			
	53-68	49	35	12-27	1.30-1.80	0.20-0.60	0.10-0.16	0.0-2.9	0.0-1.0	.24	.24			
	68-80	75	14	8-12	1.50-1.80	0.60-2.00	0.02-0.10	0.0-2.9	0.0-0.5	.20	.20			
Elmer-----	0-6	53	36	10-17	1.50-1.70	2.00-6.00	0.17-0.20	0.0-2.9	1.0-2.0	.32	.32	2	3	86
	6-9	51	34	10-17	1.50-1.70	2.00-6.00	0.17-0.20	0.0-2.9	1.0-2.0	.28	.28			
	9-19	53	30	10-17	1.50-1.75	2.00-6.00	0.17-0.20	0.0-2.9	1.0-2.0	.28	.28			
	19-26	60	21	17-25	1.55-1.65	0.20-0.60	0.12-0.16	0.0-2.9	0.5-1.0	.32	.32			
	26-37	65	18	17-25	1.55-1.70	0.20-0.60	0.12-0.16	0.0-2.9	0.0-1.0	.32	.32			
	37-43	40	35	20-28	1.50-1.60	0.06-0.20	0.12-0.16	6.0-8.9	0.0-0.5	.37	.37			
	43-51	25	47	20-28	1.50-1.60	0.06-0.20	0.12-0.16	6.0-8.9	0.0-0.5	.37	.37			
	51-61	52	28	14-22	1.60-1.80	0.20-0.60	0.10-0.16	0.0-2.9	0.0-0.5	.28	.28			
	61-72	68	17	14-22	1.60-1.80	0.20-0.60	0.10-0.16	0.0-2.9	0.0-0.5	.28	.28			
	72-80	72	14	14-20	1.60-1.80	0.20-0.60	0.10-0.16	0.0-2.9	0.0-0.5	.28	.28			
1555: Dillhut-----	0-4	92	6	1-3	1.40-1.55	6.00-19.99	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	4-9	95	4	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15			
	9-18	96	3	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.5	.15	.15			
	18-26	93	5	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.5	.15	.15			
	26-41	70	16	13-30	1.40-1.55	0.60-2.00	0.12-0.15	0.0-2.9	0.0-0.0	.24	.24			
	41-55	75	15	10-22	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	55-65	77	13	9-17	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	65-70	57	25	10-20	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	70-80	76	15	5-15	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-0.0	.15	.15			
Plev-----	0-4	86	10	3-8	1.40-1.55	6.00-19.99	0.02-0.10	0.0-2.9	0.0-1.0	.17	.17	5	2	134
	4-12	88	10	1-5	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.5	.15	.15			
	12-35	94	5	0-2	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.0	.10	.10			
	35-46	96	4	0-2	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.0	.10	.10			
	46-57	70	14	10-27	1.55-1.65	0.60-2.00	0.08-0.10	0.0-2.9	0.0-0.0	.20	.20			
	57-75	79	9	10-27	1.55-1.65	0.60-2.00	0.08-0.10	0.0-2.9	0.0-0.0	.20	.20			
	75-80	84	11	4-6	1.45-1.60	5.95-19.98	0.04-0.10	0.0-2.9	0.0-0.0	.15	.15			

PHYSICAL PROPERTIES OF THE SOILS  
Stafford County, Kansas: Published

(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		
1556: Dillhut-----	0-4	92	6	1-3	1.40-1.55	6.00-19.99	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	4-9	95	4	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15			
	9-18	96	3	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.5	.15	.15			
	18-26	93	5	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.5	.15	.15			
	26-41	70	16	13-30	1.40-1.55	0.60-2.00	0.12-0.15	0.0-2.9	0.0-0.0	.24	.24			
	41-55	75	15	10-22	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	55-65	77	13	9-17	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	65-70	57	25	10-20	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	70-80	76	15	5-15	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-0.0	.15	.15			
Solvay-----	0-5	79	12	9-16	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.5-2.0	.20	.20	5	3	86
	5-14	58	23	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.8	.28	.28			
	14-23	57	26	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	23-37	56	31	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	37-58	77	12	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			
	58-76	87	3	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			
	76-80	86	5	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			
1725: Farnum-----	0-5	43	40	14-27	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	56
	5-15	42	38	14-27	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28			
	15-21	40	37	20-27	1.40-1.50	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.5	.28	.28			
	21-34	57	18	20-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-0.5	.28	.28			
	34-48	38	36	25-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-0.5	.28	.28			
	48-61	34	37	25-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-0.5	.28	.28			
	61-73	35	38	25-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-0.5	.28	.28			
	73-80	39	37	12-29	1.40-1.55	0.60-2.00	0.13-0.16	0.0-2.9	0.0-0.5	.28	.28			
Funmar-----	0-6	42	38	14-26	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	56
	6-12	41	37	14-26	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28			
	12-17	38	36	22-34	1.40-1.60	0.20-0.60	0.17-0.19	0.0-2.9	1.0-2.0	.32	.32			
	17-26	34	37	22-34	1.40-1.60	0.20-0.60	0.17-0.19	0.0-2.9	1.0-2.0	.32	.32			
	26-32	38	36	22-34	1.40-1.60	0.20-0.60	0.17-0.19	0.0-2.9	0.5-2.0	.32	.32			
	32-38	20	48	26-34	1.35-1.45	0.20-0.60	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32			
	38-54	8	54	28-45	1.40-1.60	0.06-0.20	0.10-0.17	3.0-5.9	0.0-0.5	.37	.37			
	54-66	8	56	28-45	1.40-1.60	0.06-0.20	0.10-0.17	3.0-5.9	0.0-0.5	.37	.37			
	66-80	8	54	26-45	1.50-1.60	0.06-0.20	0.10-0.17	0.0-2.9	0.0-0.5	.37	.37			
1726: Farnum-----	0-5	43	40	14-27	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	56
	5-15	42	38	14-27	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28			
	15-21	40	37	20-27	1.40-1.50	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.5	.28	.28			
	21-34	57	18	20-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-0.5	.28	.28			
	34-48	38	36	25-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-0.5	.28	.28			
	48-61	34	37	25-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-0.5	.28	.28			
	61-73	35	38	25-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	0.0-0.5	.28	.28			
	73-80	39	37	12-29	1.40-1.55	0.60-2.00	0.13-0.16	0.0-2.9	0.0-0.5	.28	.28			
Funmar-----	0-6	42	38	14-26	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	56
	6-12	41	37	14-26	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28			
	12-17	38	36	22-34	1.40-1.60	0.20-0.60	0.17-0.19	0.0-2.9	1.0-2.0	.32	.32			
	17-26	34	37	22-34	1.40-1.60	0.20-0.60	0.17-0.19	0.0-2.9	1.0-2.0	.32	.32			
	26-32	38	36	22-34	1.40-1.60	0.20-0.60	0.17-0.19	0.0-2.9	0.5-2.0	.32	.32			
	32-38	20	48	26-34	1.35-1.45	0.20-0.60	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32			
	38-54	8	54	28-45	1.40-1.60	0.06-0.20	0.10-0.17	3.0-5.9	0.0-0.5	.37	.37			
	54-66	8	56	28-45	1.40-1.60	0.06-0.20	0.10-0.17	3.0-5.9	0.0-0.5	.37	.37			
	66-80	8	54	26-45	1.50-1.60	0.06-0.20	0.10-0.17	0.0-2.9	0.0-0.5	.37	.37			
1985: Hayes-----	0-8	63	26	9-13	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	8-14	65	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	14-23	65	19	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	23-34	65	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	34-42	67	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	42-47	66	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	47-56	61	18	19-28	1.40-1.60	0.20-0.60	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	56-69	8	50	28-45	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	69-80	34	37	28-45	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
1986: Hayes-----	0-8	85	7	1-9	1.50-1.60	6.00-19.99	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-14	65	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	14-23	65	19	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	23-34	65	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	34-42	67	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	42-47	66	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	47-56	61	18	19-28	1.40-1.60	0.20-0.60	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	56-69	8	50	28-45	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	69-80	34	37	28-45	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
Solvay-----	0-5	79	16	3-8	1.50-1.60	2.00-6.00	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	5-14	62	19	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.8	.28	.28			
	14-23	63	19	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	23-37	66	20	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	37-58	63	26	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			
	58-76	83	6	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			
	76-80	84	6	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			

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Map symbol and soil name	Depth In	Sand Pct	Silt Pct	Clay Pct	Moist bulk density g/cc	Permea- bility (Ksat) in/hr	Available water capacity In/in	Linear extensi- bility Pct	Organic matter Pct	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
1987: Hayes-----	0-8	86	5	1-9	1.50-1.60	6.00-19.99	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-14	79	6	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	14-23	76	8	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	23-34	78	6	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	34-42	81	5	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	42-47	74	12	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	47-56	67	13	19-28	1.40-1.60	0.20-0.60	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	56-69	11	48	28-45	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	69-80	30	40	28-45	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
Turon-----	0-8	88	8	1-5	1.40-1.55	6.00-19.99	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	8-28	88	4	3-10	1.40-1.55	5.95-19.98	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	28-40	88	3	2-18	1.40-1.55	1.98-19.98	0.10-0.15	0.0-2.9	0.0-0.0	.24	.24			
	40-58	11	49	27-41	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
	58-75	6	53	27-45	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
	75-80	4	54	27-45	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
1988: Hayes-----	0-8	63	26	9-13	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	8-14	65	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	14-23	65	19	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	23-34	65	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	34-42	67	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	42-47	66	20	8-17	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	47-56	61	18	19-28	1.40-1.60	0.20-0.60	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	56-69	8	50	28-45	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	69-80	34	37	28-45	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
2110: Aguolls-----	0-72			---	---	---	---	---	---	---	---	-	---	0
2381: Kanza-----	0-4	67	25	3-12	1.50-1.70	0.60-2.00	0.08-0.13	3.0-5.9	1.0-3.0	.20	.20	5	3	86
	4-9	80	14	3-12	1.50-1.70	0.60-2.00	0.08-0.13	3.0-5.9	1.0-3.0	.17	.17			
	9-17	82	12	3-12	1.60-1.70	5.95-19.98	0.10-0.12	0.0-2.9	0.5-2.0	.17	.17			
	17-33	80	15	1-12	1.50-1.70	5.95-19.98	0.06-0.11	0.0-2.9	0.0-0.5	.17	.20			
	33-80	90	5	1-12	1.50-1.70	5.95-19.98	0.06-0.11	0.0-2.9	0.0-0.5	.17	.20			
Ninnescah----	0-6	57	27	11-17	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20	5	3	86
	6-14	62	22	11-17	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20			
	14-19	66	19	11-17	1.40-1.60	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20			
	19-30	73	16	10-17	1.40-1.65	2.00-6.00	0.12-0.16	0.0-2.9	0.5-1.0	.20	.20			
	30-37	72	16	10-17	1.40-1.70	2.00-6.00	0.12-0.16	0.0-2.9	0.5-1.0	.20	.20			
	37-52	71	17	2-12	1.50-1.70	1.98-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.17	.17			
	52-80	75	16	2-10	1.50-1.70	1.98-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.17	.17			
2556: Langdon-----	0-8	96	1	0-6	1.35-1.50	6.00-19.99	0.07-0.09	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	8-47			0-12	1.50-1.70	6.00-19.99	0.02-0.08	0.0-2.9	0.0-0.0	.15	.15			
	47-64	96	1	0-5	1.50-1.70	6.00-19.99	0.02-0.08	0.0-2.9	0.0-0.0	.17	.15			
	64-80			0-12	1.50-1.70	6.00-19.99	0.02-0.08	0.0-2.9	0.0-0.0	.15	.15			
2958: Ninnescah----	0-6	57	27	11-17	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20	5	3	86
	6-14	62	22	11-17	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20			
	14-19	66	19	11-17	1.40-1.60	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20			
	19-30	73	16	10-17	1.40-1.65	2.00-6.00	0.12-0.16	0.0-2.9	0.5-1.0	.20	.20			
	30-37	72	16	10-17	1.40-1.70	2.00-6.00	0.12-0.16	0.0-2.9	0.5-1.0	.20	.20			
	37-52	71	17	2-12	1.50-1.70	1.98-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.17	.17			
	52-80	75	16	2-10	1.50-1.70	1.98-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.17	.17			
3053: Ost-----	0-8	35	44	10-27	1.40-1.54	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	48
	8-12	32	41	20-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	1.0-2.0	.32	.32			
	12-18	32	41	20-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	1.0-2.0	.32	.32			
	18-23	23	48	18-35	1.40-1.52	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.32	.32			
	23-38	26	47	5-30	1.40-1.65	0.20-0.60	0.13-0.19	0.0-2.9	0.0-0.6	.32	.37			
	38-54	33	44	5-30	1.40-1.65	0.20-0.60	0.13-0.19	0.0-2.9	0.0-0.5	.32	.37			
	54-80	44	35	5-30	1.40-1.65	0.20-0.60	0.13-0.19	0.0-2.9	0.0-0.5	.32	.37			
3180: Pratt-----	0-8	90	4	1-7	1.40-1.55	6.00-19.99	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	220
	8-24	87	3	4-11	1.45-1.55	5.95-19.98	0.09-0.12	0.0-2.9	0.0-0.5	.17	.17			
	24-64	89	3	4-11	1.45-1.55	5.95-19.98	0.09-0.12	0.0-2.9	0.0-0.5	.17	.17			
	64-80	89	4	1-8	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-0.5	.17	.17			
3181: Pratt-----	0-8	90	4	1-7	1.40-1.55	6.00-19.99	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	220
	8-24	87	3	4-11	1.45-1.55	5.95-19.98	0.09-0.12	0.0-2.9	0.0-0.5	.17	.17			
	24-64	89	3	4-11	1.45-1.55	5.95-19.98	0.09-0.12	0.0-2.9	0.0-0.5	.17	.17			
	64-80	89	4	1-8	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-0.5	.17	.17			
Turon-----	0-8	88	8	1-5	1.40-1.55	6.00-19.99	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	8-28	88	4	3-10	1.40-1.55	5.95-19.98	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	28-40	88	3	2-18	1.40-1.55	1.98-19.98	0.10-0.15	0.0-2.9	0.0-0.0	.24	.24			
	40-58	11	49	27-41	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
	58-75	6	53	27-45	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
	75-80	4	54	27-45	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			

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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		
3511: Saltcreek----	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
	0-5	67	20	10-19	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	5-10	58	20	10-27	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	1.0-2.0	.20	.20			
	10-26	58	21	16-28	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.0-1.0	.28	.28			
	26-39	63	18	16-28	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.0-1.0	.28	.28			
	39-56	17	42	28-42	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	56-66	8	56	28-42	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	66-80	10	59	28-42	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
Naron, sandy substratum--	0-7	74	16	8-15	1.45-1.55	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.20	5	3	86
	7-19	70	18	8-15	1.45-1.55	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.20			
	19-34	45	35	18-28	1.45-1.55	2.00-6.00	0.15-0.18	0.0-2.9	0.0-0.5	.32	.32			
	34-41	65	15	18-28	1.45-1.55	0.60-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.32	.32			
	41-61	70	20	2-15	1.55-1.60	2.00-6.00	0.10-0.15	0.0-2.9	0.0-0.0	.15	.15			
	61-80	90	6	0-5	1.55-1.60	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.0	.05	.05			
3512: Saltcreek----	0-5	67	20	10-19	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	5-10	60	18	10-27	1.45-1.55	2.00-6.00	0.11-0.15	0.0-2.9	1.0-2.0	.20	.20			
	10-26	60	18	16-28	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.0-1.0	.28	.28			
	26-39	62	19	16-28	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.0-1.0	.28	.28			
	39-56	8	51	28-42	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	56-66	8	55	28-42	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	66-80	20	48	28-42	1.40-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
Naron-----	0-8	64	27	8-15	1.45-1.55	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.20	5	3	86
	8-14	65	20	8-15	1.45-1.55	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.20			
	14-28	62	19	18-27	1.45-1.55	0.60-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.32	.32			
	28-39	61	18	18-27	1.45-1.55	0.60-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.32	.32			
	39-55	62	19	18-27	1.45-1.55	0.60-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.32	.32			
	55-66	63	19	2-18	1.55-1.60	2.00-6.00	0.10-0.15	0.0-2.9	0.0-0.5	.17	.17			
	66-80	86		2-18	1.55-1.60	5.95-19.98	0.10-0.15	0.0-2.9	0.0-0.5	.10	.10			
3520: Saxman-----	0-4	79	15	1-7	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.0-1.3	.20	.20	5	2	134
	4-8	80	15	1-7	1.50-1.70	5.95-19.98	0.10-0.12	0.0-2.9	0.0-1.0	.20	.20			
	8-13	78	14	1-8	1.50-1.70	6.00-19.99	0.10-0.12	0.0-2.9	0.0-1.0	.17	.17			
	13-22	81	12	0-7	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	0.0-0.6	.17	.17			
	22-30	90	6	0-7	1.50-1.75	5.95-19.98	0.06-0.11	0.0-2.9	0.0-0.5	.17	.17			
	30-37	96	4	0-3	1.55-1.65	5.95-19.98	0.02-0.07	0.0-2.9	0.0-0.1	.15	.15			
	37-48	96	4	0-3	1.55-1.65	5.95-19.98	0.02-0.07	0.0-2.9	0.0-0.1	.15	.15			
	48-54	97	3	0-3	1.55-1.65	5.95-19.98	0.02-0.07	0.0-2.9	0.0-0.1	.15	.15			
	54-80	97	3	0-1	1.55-1.65	5.95-19.98	0.02-0.05	0.0-2.9	0.0-0.1	.05	.05			
3540: Solvay-----	0-5	79	16	3-8	1.50-1.60	2.00-6.00	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	5	3	86
	5-14	62	19	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.8	.28	.28			
	14-23	63	19	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	23-37	66	20	13-34	1.50-1.80	0.20-2.00	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
	37-58	63	26	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			
	58-76	83	6	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			
	76-80	84	6	7-22	1.50-1.80	2.00-6.00	0.11-0.16	0.0-2.9	0.0-0.5	.24	.24			
3639: Taver-----	0-7	36	44	17-25	1.30-1.55	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	48
	7-17	15	49	35-45	1.35-1.60	0.00-0.06	0.12-0.18	6.0-8.9	0.0-2.0	.37	.37			
	17-33	5	55	35-45	1.35-1.60	0.00-0.06	0.12-0.18	6.0-8.9	0.0-2.0	.37	.37			
	33-53	5	56	35-45	1.35-1.60	0.00-0.06	0.12-0.18	6.0-8.9	0.0-2.0	.37	.37			
	53-64	30	35	20-35	1.45-1.65	0.20-0.60	0.15-0.19	0.0-2.9	0.5-1.0	.28	.28			
	64-80	50	22	20-30	1.45-1.65	0.60-2.00	0.15-0.19	0.0-2.9	0.5-1.0	.28	.28			
3640: Tivin-----	0-7	98	1	0-2	1.35-1.50	6.00-19.98	0.07-0.09	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	7-18	97	1	0-2	1.35-1.50	5.95-19.98	0.02-0.08	0.0-2.9	0.0-0.5	.10	.10			
	18-80	97	1	0-3	1.50-1.70	5.95-19.98	0.02-0.08	0.0-2.9	0.0-0.0	.10	.10			
3641: Tivin-----	0-7	97	1	0-2	1.35-1.50	6.00-19.98	0.07-0.09	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	7-18	97	1	0-2	1.35-1.50	5.95-19.98	0.02-0.08	0.0-2.9	0.0-0.5	.10	.10			
	18-80	97	0	0-3	1.50-1.70	5.95-19.98	0.02-0.08	0.0-2.9	0.0-0.0	.10	.10			
Dillhut-----	0-4	92	6	1-3	1.40-1.55	6.00-19.99	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	4-9	95	4	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15			
	9-18	96	3	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.5	.15	.15			
	18-26	93	5	1-3	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	0.0-0.5	.15	.15			
	26-41	70	16	13-30	1.40-1.55	0.60-2.00	0.12-0.15	0.0-2.9	0.0-0.0	.24	.24			
	41-55	75	15	10-21	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	55-65	77	13	9-17	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	65-70	57	25	10-20	1.55-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.0	.17	.17			
	70-80	76	15	5-15	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-0.0	.15	.15			

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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		
3644:														
Turon-----	0-8	88	8	1-5	1.40-1.55	6.00-19.99	0.02-0.10	0.0-2.9	0.0-1.0	.15	.15	5	1	220
	8-28	88	4	3-10	1.40-1.55	5.95-19.98	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	28-40	88	3	2-18	1.40-1.55	1.98-19.98	0.10-0.15	0.0-2.9	0.0-0.0	.24	.24			
	40-58	11	49	27-41	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
	58-75	6	53	27-45	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
	75-80	4	54	27-45	1.45-1.60	0.00-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
Carway-----	0-7	84	10	2-10	1.50-1.60	6.00-19.99	0.05-0.09	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	7-10	61	19	20-29	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	10-15	61	18	20-29	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	15-22	64	17	18-29	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	22-35	63	18	18-29	1.40-1.60	0.60-2.00	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	35-40	34	36	28-45	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	40-54	32	33	30-45	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	54-63	30	30	30-45	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	63-72	30	32	30-45	1.40-1.60	0.00-0.06	0.10-0.17	6.0-8.9	0.0-0.5	.37	.37			
	72-80	28	40	15-34	1.45-1.65	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.28	.28			
3926:														
Water-----	---			---	---	---	---	---	---	---	---	-	---	---
An:														
Albion-----	0-10	66	23	7-15	1.35-1.50	2.00-6.00	0.13-0.17	0.0-2.9	1.0-2.0	.20	.20	4	3	86
	10-20	67	19	10-18	1.45-1.60	2.00-6.00	0.12-0.18	0.0-2.9	---	.20	.24			
	20-30	66	24	4-15	1.45-1.60	2.00-6.00	0.09-0.12	0.0-2.9	---	.17	.20			
	30-60	90	4	2-10	1.50-1.65	5.95-19.98	0.03-0.10	0.0-2.9	---	.15	.32			
At:														
Attica-----	0-10	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
	10-21	67	20	8-18	1.50-1.60	2.00-6.00	0.12-0.17	0.0-2.9	---	.24	.24			
	21-60	63	26	4-18	1.50-1.60	2.00-6.00	0.08-0.16	0.0-2.9	---	.24	.28			
Ba:														
Blanket-----	0-10	26	53	15-27	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5	5	56
	10-52	8	50	35-50	1.35-1.55	0.20-0.60	0.12-0.18	3.0-5.9	---	.43	.43			
	52-60	7	51	35-50	1.35-1.55	0.60-2.00	0.12-0.18	3.0-5.9	---	.43	.37			
BIG:														
Big Salt														
Marsh-----	---			---	---	---	---	---	---	---	---	-	---	---
Ca:														
Carwile-----	0-10	62	26	5-18	1.30-1.65	0.60-2.00	0.11-0.20	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	10-18	54	14	25-39	1.45-1.75	0.20-2.00	0.12-0.20	3.0-5.9	---	.37	.37			
	18-46	23	29	35-60	1.35-1.75	0.06-0.20	0.12-0.20	6.0-8.9	---	.37	.37			
	46-60	36	32	20-45	1.35-1.75	0.20-2.00	0.12-0.20	6.0-8.9	---	.32	.32			
Cw:														
Carwile-----	0-7	62	26	5-18	1.30-1.65	0.60-2.00	0.11-0.20	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	7-14	54	14	25-39	1.45-1.75	0.20-2.00	0.12-0.20	3.0-5.9	---	.37	.37			
	14-38	50	3	35-60	1.35-1.75	0.06-0.20	0.12-0.20	6.0-8.9	---	.37	.37			
	38-60	54	14	20-45	1.35-1.75	0.20-2.00	0.12-0.20	6.0-8.9	---	.32	.32			
Cx:														
Clark-----	0-8	42	37	15-27	1.35-1.45	0.60-2.00	0.17-0.22	3.0-5.9	1.0-2.0	.28	.28	5	4L	86
	8-60	38	36	18-35	1.35-1.70	0.60-2.00	0.14-0.19	3.0-5.9	---	.28	.28			
Dp:														
Dillwyn-----	0-8	79	16	2-8	1.50-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-2.0	.17	.17	5	2	134
	8-60	94	1	2-8	1.50-1.60	5.95-19.98	0.06-0.10	0.0-2.9	---	.17	.17			
	0-12	67	20	8-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20	5	3	86
	12-38	67	20	8-18	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	---	.20	.20			
	38-60	95	1	1-7	1.50-1.60	2.00-6.00	0.05-0.07	0.0-2.9	---	.20	.20			
Dt:														
Dillwyn-----	0-8	79	16	2-8	1.50-1.60	5.95-19.98	0.08-0.12	0.0-2.9	0.0-2.0	.17	.17	5	2	134
	8-60	94	1	2-8	1.50-1.60	5.95-19.98	0.06-0.10	0.0-2.9	---	.17	.17			
	0-10	86	7	5-10	1.35-1.50	5.95-19.98	0.07-0.11	0.0-2.9	0.0-1.0	.17	.17	5	2	134
	10-60	93	1	1-10	1.50-1.70	5.95-19.98	0.02-0.08	0.0-2.9	---	.17	.17			
Fa:														
Farnum-----	0-14	63	26	8-14	1.45-1.55	2.00-6.00	0.13-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	14-22	39	37	20-27	1.40-1.50	0.60-2.00	0.17-0.19	0.0-2.9	---	.28	.28			
	22-46	34	36	25-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	---	.28	.28			
	46-60	42	38	12-29	1.40-1.55	0.60-2.00	0.13-0.16	0.0-2.9	---	.28	.28			
Fr:														
Farnum-----	0-9	42	38	14-27	1.35-1.45	0.60-2.00	0.19-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	48
	9-22	39	37	20-27	1.40-1.50	0.60-2.00	0.17-0.19	0.0-2.9	---	.28	.28			
	22-46	34	36	25-35	1.40-1.50	0.60-2.00	0.15-0.19	3.0-5.9	---	.28	.28			
	46-60	38	41	12-29	1.40-1.55	0.60-2.00	0.13-0.16	0.0-2.9	---	.28	.28			
GRP:														
Gravel Pits--	---			---	---	---	---	---	---	---	---	-	---	---
INT:														
Aquolls-----	0-72			---	---	---	---	---	---	---	---	-	---	0
Kg:														
Kingman-----	0-10	7	62	27-35	1.35-1.45	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	4L	86
	10-50	7	62	27-35	1.40-1.50	0.20-0.60	0.18-0.20	3.0-5.9	---	.32	.32			
	50-60	64	15	12-30	1.45-1.60	0.20-2.00	0.12-0.19	0.0-2.9	---	.32	.32			
M-W:														
Miscellaneous	---			---	---	---	---	---	---	---	---	-	---	---
Water-----														
Na:														
Naron-----	0-7	63	26	8-14	1.40-1.50	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.20	5	3	86
	7-44	60	18	18-27	1.45-1.55	0.60-2.00	0.15-0.18	0.0-2.9	---	.32	.32			
	44-60	65	27	2-14	1.50-1.60	2.00-6.00	0.10-0.15	0.0-2.9	---	.32	.32			

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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		
NAA:														
Naron-----	0-14	63	26	8-14	1.40-1.50	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.20	5	3	86
	14-40	59	18	18-27	1.45-1.55	0.60-2.00	0.15-0.18	0.0-2.9	---	.32	.32			
	40-60	65	27	2-14	1.50-1.60	2.00-6.00	0.10-0.15	0.0-2.9	---	.32	.32			
NBB:														
Naron-----	0-14	63	26	8-14	1.40-1.50	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.20	5	3	86
	14-40	60	18	18-27	1.45-1.55	0.60-2.00	0.15-0.18	0.0-2.9	---	.32	.32			
	40-60	65	27	2-14	1.50-1.60	2.00-6.00	0.10-0.15	0.0-2.9	---	.32	.32			
Nu:														
Natrustolls--	0-10	66	20	10-18	1.30-1.60	2.00-6.00	0.05-0.08	0.0-2.9	0.5-1.0	.32	.32	2	4L	86
	10-25	25	27	35-60	1.40-1.65	0.00-0.06	0.06-0.12	6.0-8.9	---	.37	.37			
	25-60			---	---	---	---	---	---	---	---			
Pa:														
Plevna-----	0-12	67	20	8-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20	5	3	86
	12-38	67	20	8-18	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	---	.20	.20			
	38-60	95	1	1-7	1.50-1.60	2.00-6.00	0.05-0.07	0.0-2.9	---	.20	.20			
Pc:														
Plevna-----	0-12	67	20	8-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-4.0	.20	.20	5	3	86
	12-38	67	20	8-18	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	---	.20	.20			
	38-60	95	1	1-7	1.50-1.60	2.00-6.00	0.05-0.07	0.0-2.9	---	.20	.20			
Ph:														
Pratt-----	0-8	79	16	2-8	1.40-1.55	5.95-19.98	0.10-0.13	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-28	86	7	4-11	1.45-1.55	5.95-19.98	0.09-0.12	0.0-2.9	---	.17	.17			
	28-60	79	16	1-8	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	---	.17	.17			
Po:														
Pratt-----	0-8	79	16	2-8	1.40-1.55	5.95-19.98	0.10-0.13	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-28	86	7	4-11	1.45-1.55	5.95-19.98	0.09-0.12	0.0-2.9	---	.17	.17			
	28-60	79	16	1-8	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	---	.17	.17			
Pr:														
Pratt-----	0-8	79	16	2-8	1.40-1.55	5.95-19.98	0.10-0.13	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-28	86	7	4-11	1.45-1.55	5.95-19.98	0.09-0.12	0.0-2.9	---	.17	.17			
	28-60	79	16	1-8	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	---	.17	.17			
Carwile-----	0-7	62	26	5-18	1.30-1.65	0.60-2.00	0.11-0.20	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	7-14	54	14	25-39	1.45-1.75	0.20-2.00	0.12-0.20	3.0-5.9	---	.37	.37			
	14-38	50	3	35-60	1.35-1.75	0.06-0.20	0.12-0.20	6.0-8.9	---	.37	.37			
	38-60	54	14	20-45	1.35-1.75	0.20-2.00	0.12-0.20	6.0-8.9	---	.32	.32			
Pt:														
Pratt-----	0-8	79	16	2-8	1.40-1.55	5.95-19.98	0.10-0.13	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-28	86	7	4-11	1.45-1.55	5.95-19.98	0.09-0.12	0.0-2.9	---	.17	.17			
	28-60	79	16	1-8	1.45-1.60	5.95-19.98	0.08-0.12	0.0-2.9	---	.17	.17			
Tivoli-----	0-6	86	7	5-10	1.35-1.50	5.95-19.98	0.07-0.11	0.0-2.9	0.0-1.0	.17	.17	5	2	134
	6-60	93	1	1-10	1.50-1.70	5.95-19.98	0.02-0.08	0.0-2.9	---	.17	.17			
Ta:														
Tabler-----	0-7	42	38	12-27	1.30-1.55	0.60-2.00	0.15-0.24	0.0-2.9	1.0-3.0	.49	.49	5	6	48
	7-48	23	29	40-55	1.35-1.60	0.00-0.06	0.12-0.18	6.0-8.9	---	.37	.37			
	48-60	26	29	35-55	1.35-1.65	0.00-0.06	0.12-0.22	6.0-8.9	---	.37	.37			
TAA:														
Tabler-----	0-10	35	34	27-35	1.30-1.60	0.20-0.60	0.15-0.22	3.0-5.9	1.0-3.0	.43	.43	5	7	38
	10-40	6	47	40-55	1.35-1.60	0.00-0.06	0.12-0.18	6.0-8.9	---	.37	.37			
	40-60	7	48	35-55	1.35-1.65	0.00-0.06	0.12-0.22	6.0-8.9	---	.37	.37			
Tv:														
Tivoli-----	0-6	93	1	1-10	1.35-1.50	5.95-19.98	0.02-0.08	0.0-2.9	0.0-1.0	.17	.17	5	1	250
	6-60	93	1	1-10	1.50-1.70	5.95-19.98	0.02-0.08	0.0-2.9	---	.17	.17			
W:														
Water-----	---			---	---	---	---	---	---	---	---	-	---	---
Wa:														
Waldeck-----	0-12	68	20	8-16	1.50-1.60	2.00-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.20	.20	4	3	86
	12-30	68	20	8-16	1.50-1.60	2.00-6.00	0.12-0.17	0.0-2.9	---	.20	.20			
	30-60	97	1	1-4	1.55-1.65	5.95-19.98	0.05-0.07	0.0-2.9	---	.20	.24			
Za:														
Zenda-----	0-20	42	38	12-27	1.45-1.55	0.60-2.00	0.17-0.22	3.0-5.9	1.0-3.0	.28	.28	5	6	48
	20-60	38	36	18-35	1.45-1.60	0.60-2.00	0.15-0.19	3.0-5.9	---	.28	.28			
Natrustolls--	0-10	66	20	10-18	1.30-1.60	2.00-6.00	0.05-0.08	0.0-2.9	0.5-1.0	.32	.32	2	4L	86
	10-25	25	27	35-60	1.40-1.65	0.00-0.06	0.06-0.12	6.0-8.9	---	.37	.37			
	25-60			---	---	---	---	---	---	---	---			
ZSS:														
Drummond-----	0-8	34	37	27-32	1.30-1.60	0.20-0.60	0.08-0.11	3.0-5.9	0.5-1.0	.49	.49	2	4L	86
	8-30	23	29	35-60	1.40-1.65	0.00-0.06	0.06-0.12	6.0-8.9	---	.37	.37			
	30-60			---	---	---	---	---	---	---	---			
Zenda-----	0-14	34	37	27-32	1.45-1.55	0.60-2.00	0.17-0.22	3.0-5.9	1.0-3.0	.28	.28	5	6	48
	14-60	35	38	18-35	1.45-1.60	0.60-2.00	0.15-0.19	3.0-5.9	---	.28	.28			

CHEMICAL PROPERTIES OF THE SOILS  
Stafford 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  
Stafford County, Kansas

PAGE 2 of 10

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	
009DT:							
Dillwyn-----	0-8	0.0-6.0	5.6-7.3	---	---	---	---
	8-60	0.0-5.0	5.6-7.8	---	---	---	---
Tivoli-----	0-6	0.0-7.0	6.1-7.8	---	---	---	---
	6-60	0.0-6.0	6.1-8.4	---	---	---	---
009TV:							
Tivoli-----	0-6	0.0-7.0	6.1-7.8	---	---	---	---
	6-60	0.0-6.0	6.1-8.4	---	---	---	---
047CS:							
Carwile-----	0-11	2.0-13	5.1-7.3	---	---	---	---
	11-17	10-24	5.1-7.3	---	---	---	---
	17-42	14-36	6.1-8.4	---	---	---	---
	42-60	8.0-27	6.6-8.4	---	---	---	---
Drummond-----	0-8	4.0-11	6.1-8.4	---	---	0.0-4.0	---
	8-30	14-36	7.4-9.0	---	---	2.0-8.0	---
	>30	---	---	---	---	---	---
151KP:							
Kanza-----	0-11	1.0-9.0	5.6-6.5	---	---	---	---
	11-40	0.0-7.0	5.6-8.4	---	---	---	---
Plevna-----	0-10	3.0-13	6.6-8.4	0	0	0	0
	10-40	3.0-11	6.6-8.4	0	0	0	0
	40-60	0.0-4.0	6.6-8.4	0	0	0	0
159DP:							
Dillwyn-----	0-9	0.0-6.0	5.6-7.3	---	---	---	---
	9-60	0.0-5.0	5.6-7.8	---	---	---	---
Plevna-----	0-10	1.0-7.0	6.6-8.4	0	0	0	0
	10-33	3.0-11	6.6-8.4	0	0	0	0
	33-60	0.0-4.0	6.6-8.4	0	0	0	0
159DT:							
Dillwyn-----	0-9	0.0-6.0	5.6-7.3	---	---	---	---
	9-60	0.0-5.0	5.6-7.8	---	---	---	---
Tivoli-----	0-7	0.0-7.0	6.1-7.8	---	---	---	---
	7-60	0.0-6.0	6.1-8.4	---	---	---	---
159DU:							
Drummond-----	0-8	11-20	6.1-8.4	---	---	0.0-4.0	---
	8-35	14-36	7.4-9.0	---	---	2.0-8.0	---
	35-60	---	---	---	---	---	---
159PE:							
Plevna-----	0-10	3.0-13	6.6-8.4	0	0	0	0
	10-33	3.0-11	6.6-8.4	0	0	0	0
	33-60	0.0-4.0	6.6-8.4	0	0	0	0
990:							
Abbyville-----	0-8	10-25	7.4-8.4	0	0	0.0-2.0	2-8
	8-15	15-20	7.9-9.0	0-1	0	2.0-8.0	13-25
	15-24	20-35	7.9-9.0	1-5	0	2.0-8.0	13-30
	24-35	20-35	7.9-9.0	1-5	0	2.0-8.0	13-30
	35-49	20-35	7.9-9.0	1-5	0	2.0-8.0	13-30
	49-61	15-35	7.9-9.0	0-5	0	2.0-4.0	4-15
	61-69	15-35	7.9-9.0	0-5	0	2.0-4.0	4-15
	69-80	15-35	7.9-9.0	0-5	0	2.0-4.0	4-15



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

PAGE 3 of 10

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	
991: Abbyville, rarely flooded-	0-8	10-20	7.4-8.4	0	0	0.0-2.0	2-8
	8-15	15-20	7.9-9.0	0-1	0	2.0-8.0	13-25
	15-24	20-35	7.9-9.0	1-5	0	2.0-8.0	13-30
	24-35	20-35	7.9-9.0	1-5	0	2.0-8.0	13-30
	35-49	20-35	7.9-9.0	1-5	0	2.0-8.0	13-30
	49-61	15-35	7.9-9.0	0-5	0	2.0-4.0	4-15
	61-69	15-35	7.9-9.0	0-5	0	2.0-4.0	4-15
	69-80	15-35	7.9-9.0	0-5	0	2.0-4.0	4-15
Kisiwa, occasionally flooded-----	0-4	10-25	7.4-9.0	0-2	0	1.0-4.0	2-11
	4-7	10-25	7.4-9.0	0-2	0	1.0-4.0	2-8
	7-14	14-26	7.9-9.0	5-10	0	1.0-8.0	15-30
	14-23	14-26	7.9-9.0	5-10	0	1.0-8.0	15-30
	23-31	14-30	7.9-9.0	5-10	0	2.0-4.0	2-26
	31-40	14-30	7.9-9.0	5-10	0	1.0-4.0	2-18
	40-46	14-30	7.9-9.0	5-10	0	0.0-4.0	2-15
	46-52	3.0-10	7.9-9.0	5-10	0	0.0-4.0	2-4
	52-58	3.0-10	7.9-9.0	5-10	0	0.0-4.0	2-4
	58-65	0.0-6.0	7.9-9.0	0-2	0	0.0-4.0	2-4
	65-80	0.0-6.0	7.9-9.0	0-2	0	0.0-4.0	2-4
1005: Albion-----	0-9	5.0-15	5.6-6.5	0	0	0	0
	9-16	5.0-15	6.1-7.8	0	0	0	0
	16-27	5.0-15	6.1-7.8	0	0	0	0
	27-48	2.0-10	6.1-8.4	0	0	0	0
	48-80	2.0-5.0	6.1-8.4	0	0	0	0
1011: Albion-----	0-9	5.0-15	5.6-6.5	0	0	0	0
	9-16	5.0-15	6.1-7.8	0	0	0	0
	16-27	5.0-15	6.1-7.8	0	0	0	0
	27-48	2.0-10	6.1-8.4	0	0	0	0
	48-80	2.0-5.0	6.1-8.4	0	0	0	0
Shellabarger----	0-7	6.0-10	5.1-6.5	0	0	0	0
	7-11	9.0-12	6.1-7.8	0	0	0	0
	11-19	9.0-12	6.1-7.8	0	0	0	0
	19-33	9.0-12	6.1-7.8	0	0	0	0
	33-47	2.0-9.0	6.1-8.4	0-5	0	0	0
	47-59	2.0-9.0	6.1-8.4	0-5	0	0	0
	59-73	2.0-9.0	6.1-8.4	0-5	0	0	0
	73-80	2.0-9.0	6.1-8.4	0-5	0	0	0
1324: Carway-----	0-7	7.0-12	5.6-6.5	0	0	0	0
	7-10	12-18	6.1-7.3	0	0	0	0
	10-15	12-18	6.1-7.3	0	0	0	0
	15-22	12-18	6.1-7.3	0	0	0	0
	22-35	12-18	6.1-7.3	0	0	0	0
	35-40	24-35	6.6-7.8	0-5	0	0	0
	40-54	24-35	6.6-7.8	0-5	0	0	0
	54-63	24-35	6.6-7.8	0-5	0	0	0
	63-72	24-35	6.6-7.8	0-5	0	0	0
	72-80	9.0-16	6.6-7.8	0-5	0	0	0
Carbika-----	0-11	7.0-12	6.1-7.3	0	0	0	0
	11-15	28-38	6.1-8.4	0-5	0	0	0
	15-22	28-38	6.1-8.4	0-5	0	0	0
	22-34	12-16	6.1-8.4	0-5	0	0	0
	34-41	12-16	6.1-8.4	0-5	0	0	0
	41-60	12-16	6.1-8.4	0-5	0	0	0
	60-80	12-16	7.4-8.4	0-5	0	0	0

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

PAGE 4 of 10

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	
1359: Clark-----	0-11	10-25	7.4-8.4	0-5	0	0.0-1.0	0
	11-16	10-25	7.4-9.0	5-25	0	0.0-1.0	0
	16-28	10-25	7.4-9.0	0-25	0	0.0-1.0	0
	28-45	10-25	7.4-9.0	15-45	0	0.0-1.0	0
	45-65	5.0-20	7.4-9.0	15-25	0	0.0-1.0	0
	65-80	5.0-20	7.4-9.0	15-25	0	0.0-1.0	0
Ost-----	0-8	15-20	6.1-8.4	0	0	0	0
	8-12	10-25	6.6-8.4	0	0	0	0
	12-18	10-25	6.6-8.4	0	0	0	0
	18-23	10-25	7.4-8.4	15-34	0	0	0
	23-38	5.0-15	7.4-8.4	15-30	0	0	0
	38-54	5.0-15	7.4-8.4	15-30	0	0	0
	54-80	5.0-17	7.4-8.4	15-30	0	0	0
1553: Darlow-----	0-5	5.0-15	4.5-7.8	0	0	0.0-2.0	0-5
	5-8	5.0-15	4.5-7.8	0	0	0.0-2.0	0-5
	8-14	15-25	6.6-9.0	0-2	0	2.0-8.0	10-40
	14-20	15-25	6.6-9.0	0-2	0	2.0-8.0	15-40
	20-26	15-25	6.6-9.0	0-2	0	2.0-8.0	15-40
	26-33	15-30	7.9-9.0	0-1	0	4.0-16.0	30-40
	33-44	15-30	7.9-9.0	0-1	0	4.0-16.0	30-40
	44-53	10-20	7.9-8.4	0-1	0	0.0-4.0	25-35
	53-68	10-15	7.9-8.4	0-1	0	0.0-4.0	25-35
	68-80	0.0-10	7.4-8.4	0-1	0	0.0-2.0	10-30
Elmer-----	0-6	5.0-12	4.5-7.3	0	0	0.0-2.0	0-1
	6-9	5.0-12	4.5-7.3	0	0	0.0-2.0	0-1
	9-19	5.0-12	4.5-7.3	0	0	0.0-2.0	0-1
	19-26	10-18	7.4-9.0	0	0	0.0-2.0	7-20
	26-37	10-18	7.4-9.0	0	0	1.0-2.0	7-20
	37-43	15-20	7.9-9.0	1-2	0	1.0-4.0	20-30
	43-51	15-20	7.9-9.0	1-2	0	1.0-4.0	20-30
	51-61	8.0-15	7.4-9.0	0-1	0	1.0-2.0	5-25
	61-72	8.0-15	7.4-9.0	0-1	0	1.0-2.0	5-20
	72-80	8.0-15	7.4-9.0	0-1	0	0.0-2.0	5-20
1555: Dillhut-----	0-4	1.0-3.0	5.6-6.5	0	0	0	0
	4-9	1.0-3.0	5.6-6.5	0	0	0	0
	9-18	0.0-2.0	5.6-6.5	0	0	0	0
	18-26	0.0-2.0	5.6-6.5	0	0	0	0
	26-41	10-18	6.6-7.3	0	0	0	0
	41-55	7.0-10	6.6-7.3	0	0	0	0
	55-65	7.0-10	6.6-7.3	0	0	0	0
	65-70	7.0-10	6.6-7.3	0	0	0	0
	70-80	3.0-9.0	6.1-7.3	0	0	0	0
Plev-----	0-4	3.0-6.0	5.1-6.5	0	0	0	0
	4-12	0.0-3.0	5.1-6.5	0	0	0	0
	12-35	0.0-1.0	5.6-6.5	0	0	0	0
	35-46	0.0-1.0	5.6-6.5	0	0	0	0
	46-57	7.0-15	6.1-7.3	0	0	0	0
	57-75	7.0-15	6.1-7.3	0	0	0	0
	75-80	3.0-9.0	6.1-7.3	0	0	0	0
1556: Dillhut-----	0-4	1.0-3.0	5.6-6.5	0	0	0	0
	4-9	1.0-3.0	5.6-6.5	0	0	0	0
	9-18	0.0-2.0	5.6-6.5	0	0	0	0
	18-26	0.0-2.0	5.6-6.5	0	0	0	0
	26-41	10-18	6.6-7.3	0	0	0	0
	41-55	7.0-10	6.6-7.3	0	0	0	0
	55-65	7.0-10	6.6-7.3	0	0	0	0
	65-70	7.0-10	6.6-7.3	0	0	0	0
	70-80	3.0-9.0	6.1-7.3	0	0	0	0
Solvay-----	0-5	5.0-12	6.1-6.5	0	0	0	0
	5-14	8.0-19	6.1-7.3	0	0	0	0
	14-23	8.0-19	6.1-7.3	0	0	0	0
	23-37	8.0-19	6.1-7.3	0	0	0	0
	37-58	5.0-12	6.1-7.3	0	0	0	0
	58-76	5.0-12	6.1-7.3	0	0	0	0
	76-80	5.0-12	6.1-7.3	0	0	0	0

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

PAGE 5 of 10

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	
1725:							
Funmar-----	0-6	7.0-19	6.1-7.3	0	0	0	0
	6-12	7.0-19	6.1-7.3	0	0	0	0
	12-17	13-19	6.6-7.3	0	0	0	0
	17-26	13-19	6.6-7.3	0	0	0	0
	26-32	13-19	6.6-7.3	0	0	0	0
	32-38	7.0-19	6.6-7.8	0	0	0	0
	38-54	24-41	6.6-7.8	0-5	0	0	0
	54-66	24-41	6.6-7.8	0-5	0	0	0
Farnum-----	66-80	11-18	6.6-7.8	0-5	0	0	0
	0-5	9.0-15	5.6-7.3	0	0	0	0
	5-15	9.0-15	5.6-7.3	0	0	0	0
	15-21	8.0-18	6.1-7.8	0	0	0	0
	21-34	10-23	6.1-8.4	0	0	0	0
	34-48	10-23	6.1-8.4	0	0	0	0
	48-61	10-23	6.1-8.4	0	0	0	0
	61-73	10-23	6.1-8.4	0	0	0	0
	73-80	4.0-19	6.6-8.4	0	0	0	0
1726:							
Farnum-----	0-5	9.0-15	5.6-7.3	0	0	0	0
	5-15	9.0-15	5.6-7.3	0	0	0	0
	15-21	8.0-18	6.1-7.8	0	0	0	0
	21-34	10-23	6.1-8.4	0	0	0	0
	34-48	10-23	6.1-8.4	0	0	0	0
	48-61	10-23	6.1-8.4	0	0	0	0
	61-73	10-23	6.1-8.4	0	0	0	0
Funmar-----	73-80	4.0-19	6.6-8.4	0	0	0	0
	0-6	7.0-19	6.1-7.3	0	0	0	0
	6-12	7.0-19	6.1-7.3	0	0	0	0
	12-17	13-19	6.6-7.3	0	0	0	0
	17-26	13-19	6.6-7.3	0	0	0	0
	26-32	13-19	6.6-7.3	0	0	0	0
	32-38	7.0-19	6.6-7.8	0	0	0	0
	38-54	24-41	6.6-7.8	0-5	0	0	0
	54-66	24-41	6.6-7.8	0-5	0	0	0
	66-80	11-18	6.6-7.8	0-5	0	0	0
1985:							
Hayes-----	0-8	5.0-8.0	5.1-7.3	0	0	0	0
	8-14	6.0-10	6.1-7.3	0	0	0	0
	14-23	6.0-10	6.1-7.3	0	0	0	0
	23-34	6.0-10	6.1-7.3	0	0	0	0
	34-42	6.0-10	6.1-7.3	0	0	0	0
	42-47	6.0-10	6.1-7.3	0	0	0	0
	47-56	10-15	6.6-7.8	0	0	0	0
	56-69	24-35	6.6-7.8	0-5	0	0	0
	69-80	24-35	6.6-7.8	0-5	0	0	0
1986:							
Hayes-----	0-8	1.0-5.0	5.1-7.3	0	0	0	0
	8-14	6.0-10	6.1-7.3	0	0	0	0
	14-23	6.0-10	6.1-7.3	0	0	0	0
	23-34	6.0-10	6.1-7.3	0	0	0	0
	34-42	6.0-10	6.1-7.3	0	0	0	0
	42-47	6.0-10	6.1-7.3	0	0	0	0
	47-56	10-15	6.6-7.8	0	0	0	0
	56-69	24-35	6.6-7.8	0-5	0	0	0
	69-80	24-35	6.6-7.8	0-5	0	0	0
Solvay-----	0-5	1.0-7.0	6.1-6.5	0	0	0	0
	5-14	8.0-19	6.1-7.3	0	0	0	0
	14-23	8.0-19	6.1-7.3	0	0	0	0
	23-37	8.0-19	6.1-7.3	0	0	0	0
	37-58	5.0-12	6.1-7.3	0	0	0	0
	58-76	5.0-12	6.1-7.3	0	0	0	0
	76-80	5.0-12	6.1-7.3	0	0	0	0

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

PAGE 6 of 10

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	
1987:							
Hayes-----	0-8	1.0-5.0	5.1-7.3	0	0	0	0
	8-14	6.0-10	6.1-7.3	0	0	0	0
	14-23	6.0-10	6.1-7.3	0	0	0	0
	23-34	6.0-10	6.1-7.3	0	0	0	0
	34-42	6.0-10	6.1-7.3	0	0	0	0
	42-47	6.0-10	6.1-7.3	0	0	0	0
	47-56	10-15	6.6-7.8	0	0	0	0
	56-69	24-35	6.6-7.8	0-5	0	0	0
	69-80	24-35	6.6-7.8	0-5	0	0	0
Turon-----	0-8	1.0-3.0	5.1-7.3	0	0	0	0
	8-28	2.0-5.0	5.1-7.3	0	0	0	0
	28-40	3.0-7.0	5.1-7.3	0	0	0	0
	40-58	24-33	6.6-7.8	0	0	0	0
	58-75	24-33	6.6-7.8	0	0	0	0
	75-80	24-33	6.6-7.8	0	0	0	0
1988:							
Hayes-----	0-8	5.0-8.0	5.1-7.3	0	0	0	0
	8-14	6.0-10	6.1-7.3	0	0	0	0
	14-23	6.0-10	6.1-7.3	0	0	0	0
	23-34	6.0-10	6.1-7.3	0	0	0	0
	34-42	6.0-10	6.1-7.3	0	0	0	0
	42-47	6.0-10	6.1-7.3	0	0	0	0
	47-56	10-15	6.6-7.8	0	0	0	0
	56-69	24-35	6.6-7.8	0-5	0	0	0
	69-80	24-35	6.6-7.8	0-5	0	0	0
2381:							
Kanza-----	0-4	2.0-10	5.6-6.5	0	0	0	0
	4-9	2.0-10	5.6-6.5	0	0	0	0
	9-17	2.0-5.0	5.6-6.5	0	0	0	0
	17-33	2.0-5.0	5.6-8.4	0-5	0	0	0
	33-80	2.0-5.0	5.6-8.4	0-5	0	0	0
Ninnescah-----	0-6	5.0-12	7.4-8.4	5-14	0	0.0-2.1	0-1
	6-14	5.0-12	7.4-8.4	5-14	0	0.0-2.0	0-1
	14-19	5.0-12	7.4-8.4	5-14	0	0.0-2.0	0-1
	19-30	5.0-8.0	7.4-8.4	5-11	0	0.0-1.0	0-1
	30-37	5.0-8.0	7.4-8.4	5-11	0	0.0-1.0	0-1
	37-52	3.0-8.0	6.6-8.4	0-10	0	0.0-1.0	0-1
	52-80	3.0-8.0	6.6-8.4	0-10	0	0.0-1.0	0-1
2556:							
Langdon-----	0-8	0.0-3.0	5.1-7.3	0	0	0	0
	8-47	0.0-4.0	5.1-7.3	0	0	0	0
	47-64	0.0-1.0	5.1-7.3	0	0	0	0
	64-80	0.0-4.0	4.5-6.5	0	0	0	0
2958:							
Ninnescah-----	0-6	5.0-12	7.4-8.4	5-14	0	0.0-2.1	0-1
	6-14	5.0-12	7.4-8.4	5-14	0	0.0-2.0	0-1
	14-19	5.0-12	7.4-8.4	5-14	0	0.0-2.0	0-1
	19-30	5.0-8.0	7.4-8.4	5-11	0	0.0-1.0	0-1
	30-37	5.0-8.0	7.4-8.4	5-11	0	0.0-1.0	0-1
	37-52	3.0-8.0	6.6-8.4	0-10	0	0.0-1.0	0-1
	52-80	3.0-8.0	6.6-8.4	0-10	0	0.0-1.0	0-1
3053:							
Ost-----	0-8	15-20	6.1-8.4	0	0	0	0
	8-12	10-25	6.6-8.4	0	0	0	0
	12-18	10-25	6.6-8.4	0	0	0	0
	18-23	10-25	7.4-8.4	15-34	0	0	0
	23-38	5.0-15	7.4-8.4	15-30	0	0	0
	38-54	5.0-15	7.4-8.4	15-30	0	0	0
	54-80	5.0-17	7.4-8.4	15-30	0	0	0
3180:							
Pratt-----	0-8	0.0-3.0	5.6-7.3	0	0	0	0
	8-24	2.0-5.0	5.6-7.3	0	0	0	0
	24-64	3.0-7.0	5.6-7.3	0	0	0	0
	64-80	1.0-3.0	6.1-7.3	0	0	0	0

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

PAGE 7 of 10

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	
3181:							
Pratt-----	0-8	0.0-3.0	5.6-7.3	0	0	0	0
	8-24	2.0-5.0	5.6-7.3	0	0	0	0
	24-64	3.0-7.0	5.6-7.3	0	0	0	0
	64-80	1.0-3.0	6.1-7.3	0	0	0	0
Turon-----	0-8	1.0-3.0	5.1-7.3	0	0	0	0
	8-28	2.0-5.0	5.1-7.3	0	0	0	0
	28-40	3.0-7.0	5.1-7.3	0	0	0	0
	40-58	24-33	6.6-7.8	0	0	0	0
	58-75	24-33	6.6-7.8	0	0	0	0
	75-80	24-33	6.6-7.8	0	0	0	0
3511:							
Saltcreek-----	0-5	5.0-10	4.5-6.6	0	0	0	0
	5-10	5.0-10	4.5-6.6	0	0	0	0
	10-26	10-18	6.1-7.3	0	0	0	0
	26-39	10-18	6.1-7.3	0	0	0	0
	39-56	24-35	6.1-8.4	0-5	0	0	0
	56-66	24-35	6.1-8.4	0-5	0	0	0
	66-80	24-35	6.1-8.4	0-5	0	0	0
Naron, sandy substratum-----	0-7	6.0-10	5.6-7.3	0	0	0	0
	7-19	6.0-10	5.6-7.3	0	0	0	0
	19-34	12-17	5.6-7.8	0	0	0	0
	34-41	12-17	5.6-7.8	0	0	0	0
	41-61	4.0-10	6.1-8.4	0-5	0	0	0
	61-80	0.0-1.0	6.1-8.4	0-1	0	0	0
3512:							
Saltcreek-----	0-5	5.0-10	4.5-6.6	0	0	0	0
	5-10	5.0-10	4.5-6.6	0	0	0	0
	10-26	10-18	6.1-7.3	0	0	0	0
	26-39	10-18	6.1-7.3	0	0	0	0
	39-56	24-35	6.1-8.4	0-5	0	0	0
	56-66	24-35	6.1-8.4	0-5	0	0	0
	66-80	24-35	6.1-8.4	0-5	0	0	0
Naron-----	0-8	5.0-15	5.6-7.3	0	0	0	0
	8-14	5.0-15	5.6-7.3	0	0	0	0
	14-28	10-15	5.6-7.8	0	0	0	0
	28-39	10-15	5.6-7.8	0	0	0	0
	39-55	10-15	5.6-7.8	0	0	0	0
	55-66	5.0-10	6.1-8.4	0	0	0	0
	66-80	5.0-10	6.1-8.4	0	0	0	0
3520:							
Saxman-----	0-4	1.0-5.0	4.5-6.0	0	0	0	0
	4-8	1.0-5.0	4.5-6.0	0	0	0	0
	8-13	1.0-5.0	4.5-6.0	0	0	0	0
	13-22	1.0-4.0	6.6-8.4	0	0	0	0
	22-30	1.0-4.0	6.6-8.4	0	0	0	0
	30-37	0.0-2.0	6.6-8.4	0	0	0	0
	37-48	0.0-2.0	6.6-8.4	0	0	0	0
	48-54	0.0-2.0	6.6-8.4	0	0	0	0
	54-80	0.0-0.0	6.6-8.4	0	0	0	0
3540:							
Solvay-----	0-5	1.0-7.0	6.1-6.5	0	0	0	0
	5-14	8.0-19	6.1-7.3	0	0	0	0
	14-23	8.0-19	6.1-7.3	0	0	0	0
	23-37	8.0-19	6.1-7.3	0	0	0	0
	37-58	5.0-12	6.1-7.3	0	0	0	0
	58-76	5.0-12	6.1-7.3	0	0	0	0
	76-80	5.0-12	6.1-7.3	0	0	0	0
3639:							
Taver-----	0-7	10-15	6.1-7.3	0	0	0	0
	7-17	30-40	6.6-8.4	0-5	0	0	0
	17-33	30-40	6.6-8.4	0-5	0	0	0
	33-53	30-40	6.6-8.4	0-5	0	0	0
	53-64	12-17	7.4-8.4	0-5	0	0	0
	64-80	12-17	7.4-8.4	0-5	0	0	0
3640:							
Tivin-----	0-7	0.0-1.0	5.6-6.5	0	0	0	0
	7-18	0.0-1.0	6.1-7.3	0	0	0	0
	18-80	0.0-1.0	6.1-7.3	0	0	0	0

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

PAGE 8 of 10

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	
3641:							
Tivin-----	0-7	0.0-1.0	5.6-6.5	0	0	0.0-1.0	0
	7-18	0.0-1.0	6.1-7.3	0	0	0.0-1.0	0
	18-80	0.0-1.0	6.1-7.3	0	0	0.0-1.0	0
Dillhut-----	0-4	1.0-3.0	5.6-6.5	0	0	0	0
	4-9	1.0-3.0	5.6-6.5	0	0	0	0
	9-18	0.0-2.0	5.6-6.5	0	0	0	0
	18-26	0.0-2.0	5.6-6.5	0	0	0	0
	26-41	10-18	6.6-7.3	0	0	0	0
	41-55	7.0-10	6.6-7.3	0	0	0	0
	55-65	7.0-10	6.6-7.3	0	0	0	0
	65-70	7.0-10	6.6-7.3	0	0	0	0
	70-80	3.0-9.0	6.1-7.3	0	0	0	0
3644:							
Turon-----	0-8	1.0-3.0	5.1-7.3	0	0	0	0
	8-28	2.0-5.0	5.1-7.3	0	0	0	0
	28-40	3.0-7.0	5.1-7.3	0	0	0	0
	40-58	24-33	6.6-7.8	0	0	0	0
	58-75	24-33	6.6-7.8	0	0	0	0
	75-80	24-33	6.6-7.8	0	0	0	0
Carway-----	0-7	1.0-5.0	5.6-6.5	0	0	0	0
	7-10	12-18	6.1-7.3	0	0	0	0
	10-15	12-18	6.1-7.3	0	0	0	0
	15-22	12-18	6.1-7.3	0	0	0	0
	22-35	12-18	6.1-7.3	0	0	0	0
	35-40	24-35	6.6-7.8	0-5	0	0	0
	40-54	24-35	6.6-7.8	0-5	0	0	0
	54-63	24-35	6.6-7.8	0-5	0	0	0
	63-72	24-35	6.6-7.8	0-5	0	0	0
	72-80	9.0-16	6.6-7.8	0-5	0	0	0
3926:							
Water-----	---	---	---	---	---	---	---
An:							
Albion-----	0-10	3.0-10	5.6-6.5	0	0	0	0
	10-20	4.0-11	6.1-7.8	0	0	0	0
	20-30	1.0-9.0	6.1-8.4	0	0	0	0
	30-60	0.0-6.0	6.1-8.4	0	0	0	0
At:							
Attica-----	0-10	2.0-8.0	5.6-7.3	---	---	---	---
	10-21	3.0-11	5.6-6.5	---	---	---	---
	21-60	1.0-11	6.1-7.8	---	---	---	---
Ba:							
Blanket-----	0-10	6.0-18	6.1-7.8	0	0	0	0
	10-52	14-30	6.1-8.4	---	0	0	0
	52-60	14-30	7.9-8.4	---	0	0	0
BIG:							
Big Salt Marsh--	---	---	---	---	---	---	---
Ca:							
Carwile-----	0-10	2.0-13	5.1-7.3	---	---	---	---
	10-18	10-24	5.1-7.3	---	---	---	---
	18-46	14-36	6.1-8.4	---	---	---	---
	46-60	8.0-27	6.6-8.4	---	---	---	---
Cw:							
Carwile-----	0-7	2.0-13	5.1-7.3	---	---	---	---
	7-14	10-24	5.1-7.3	---	---	---	---
	14-38	14-36	6.1-8.4	---	---	---	---
	38-60	8.0-27	6.6-8.4	---	---	---	---
Cx:							
Clark-----	0-8	6.0-18	7.4-8.4	0-5	---	---	---
	8-60	7.0-21	7.4-8.4	15-45	---	---	---
Dp:							
Dillwyn-----	0-8	0.0-6.0	5.6-7.3	---	---	---	---
	8-60	0.0-5.0	5.6-7.8	---	---	---	---
Plevna-----	0-12	3.0-13	6.6-8.4	0	0	0	0
	12-38	3.0-11	6.6-8.4	0	0	0	0
	38-60	0.0-4.0	6.6-8.4	0	0	0	0
Dt:							
Dillwyn-----	0-8	0.0-6.0	5.6-7.3	---	---	---	---
	8-60	0.0-5.0	5.6-7.8	---	---	---	---
Tivoli-----	0-10	2.0-7.0	6.1-7.8	---	---	---	---
	10-60	0.0-6.0	6.1-8.4	---	---	---	---

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

PAGE 9 of 10

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	
Fa:							
Farnum-----	0-14	3.0-10	5.6-7.3	---	---	---	---
	14-22	8.0-16	6.1-7.8	---	---	---	---
	22-46	10-21	6.1-8.4	---	---	---	---
	46-60	4.0-18	6.6-8.4	---	---	---	---
Fr:							
Farnum-----	0-9	6.0-18	5.6-7.3	---	---	---	---
	9-22	8.0-16	6.1-7.8	---	---	---	---
	22-46	10-21	6.1-8.4	---	---	---	---
	46-60	4.0-18	6.6-8.4	---	---	---	---
GRP:							
Gravel Pits----	---	---	---	---	---	---	---
INT:							
Aquolls-----	0-72	---	---	---	---	---	---
Kg:							
Kingman-----	0-10	11-24	7.4-8.4	0	0	0.0-4.0	0
	10-50	10-21	7.4-8.4	0	0	0.0-4.0	0
	50-60	4.0-18	7.4-8.4	0	0	0.0-4.0	0
M-W:							
Miscellaneous	---	---	---	---	---	---	---
Water-----							
Na:							
Naron-----	0-7	3.0-10	5.6-7.3	---	---	---	---
	7-44	7.0-16	5.6-7.8	---	---	---	---
	44-60	0.0-9.0	6.1-8.4	---	---	---	---
NAA:							
Naron-----	0-14	3.0-10	5.6-7.3	---	---	---	---
	14-40	7.0-16	5.6-7.8	---	---	---	---
	40-60	0.0-9.0	6.1-8.4	---	---	---	---
NBB:							
Naron-----	0-14	3.0-10	5.6-7.3	---	---	---	---
	14-40	7.0-16	5.6-7.8	---	---	---	---
	40-60	0.0-9.0	6.1-8.4	---	---	---	---
Nu:							
Natrustolls----	0-10	4.0-11	7.4-8.4	---	---	4.0-16.0	---
	10-25	14-36	7.9-9.0	---	---	4.0-16.0	---
	25-60	---	---	---	---	---	---
Pa:							
Plevna-----	0-12	3.0-13	6.6-8.4	0	0	0	0
	12-38	3.0-11	6.6-8.4	0	0	0	0
	38-60	0.0-4.0	6.6-8.4	0	0	0	0
Pc:							
Plevna-----	0-12	3.0-13	6.6-8.4	0	0	0	0
	12-38	3.0-11	6.6-8.4	0	0	0	0
	38-60	0.0-4.0	6.6-8.4	0	0	0	0
Ph:							
Pratt-----	0-8	1.0-5.0	5.6-7.3	---	---	---	---
	8-28	1.0-7.0	5.6-7.3	---	---	---	---
	28-60	0.0-5.0	6.1-7.3	---	---	---	---
Po:							
Pratt-----	0-8	1.0-5.0	5.6-7.3	---	---	---	---
	8-28	1.0-7.0	5.6-7.3	---	---	---	---
	28-60	0.0-5.0	6.1-7.3	---	---	---	---
Pr:							
Pratt-----	0-8	1.0-5.0	5.6-7.3	---	---	---	---
	8-28	1.0-7.0	5.6-7.3	---	---	---	---
	28-60	0.0-5.0	6.1-7.3	---	---	---	---
Carwile-----	0-7	2.0-13	5.1-7.3	---	---	---	---
	7-14	10-24	5.1-7.3	---	---	---	---
	14-38	14-36	6.1-8.4	---	---	---	---
	38-60	8.0-27	6.6-8.4	---	---	---	---
Pt:							
Pratt-----	0-8	1.0-5.0	5.6-7.3	---	---	---	---
	8-28	1.0-7.0	5.6-7.3	---	---	---	---
	28-60	0.0-5.0	6.1-7.3	---	---	---	---
Tivoli-----	0-6	2.0-7.0	6.1-7.8	---	---	---	---
	6-60	0.0-6.0	6.1-8.4	---	---	---	---
Ta:							
Tabler-----	0-7	5.0-18	5.6-8.4	0	0	0	0
	7-48	16-33	6.1-8.4	0	0	0	0
	48-60	14-33	7.4-8.4	0	0	0	0

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

PAGE 10 of 10

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	
TAA:							
Tabler-----	0-10	11-23	5.6-8.4	0	0	0	0
	10-40	16-33	6.1-8.4	0	0	0	0
	40-60	14-33	7.4-8.4	0	0	0	0
Tv:							
Tivoli-----	0-6	0.0-7.0	6.1-7.8	---	---	---	---
	6-60	0.0-6.0	6.1-8.4	---	---	---	---
W:							
Water-----	---	---	---	---	---	---	---
Wa:							
Waldeck-----	0-12	3.0-11	7.4-8.4	---	---	---	---
	12-30	3.0-10	7.4-8.4	---	---	---	---
	30-60	0.0-3.0	7.4-8.4	---	---	---	---
Za:							
Zenda-----	0-20	5.0-18	6.6-8.4	---	---	0.0-4.0	---
	20-60	7.0-21	7.4-8.4	---	---	0.0-4.0	---
Natrustolls----	0-10	4.0-11	7.4-8.4	---	---	4.0-16.0	---
	10-25	14-36	7.9-9.0	---	---	4.0-16.0	---
	25-60	---	---	---	---	---	---
ZSS:							
Zenda-----	0-14	11-21	6.6-8.4	---	---	0.0-4.0	---
	14-60	7.0-21	7.4-8.4	---	---	0.0-4.0	---
Drummond-----	0-8	11-20	7.4-8.4	---	---	4.0-16.0	---
	8-30	14-36	7.9-9.0	---	---	4.0-16.0	---
	30-60	---	---	---	---	---	---



# WATER FEATURES Stafford 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
			Ft	Ft	Ft				
009DT: Dillwyn-----	A	January	1.0-3.0	>6.0	---	---	---	---	None
		February	1.0-3.0	>6.0	---	---	---	---	None
		March	1.0-3.0	>6.0	---	---	---	---	None
		April	1.0-3.0	>6.0	---	---	---	---	None
		May	1.0-3.0	>6.0	---	---	---	---	None
		June	1.0-3.0	>6.0	---	---	---	---	None
		July	1.0-3.0	>6.0	---	---	---	---	None
		August	1.0-3.0	>6.0	---	---	---	---	None
		September	1.0-3.0	>6.0	---	---	---	---	None
		October	1.0-3.0	>6.0	---	---	---	---	None
		November	1.0-3.0	>6.0	---	---	---	---	None
		December	1.0-3.0	>6.0	---	---	---	---	None
Tivoli-----	A		---	---	---	---	---	---	---
009TV: Tivoli-----	A		---	---	---	---	---	---	---
047CS: Carwile-----	D	January	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		November	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		December	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
Drummond-----	D	January	2.0-6.0	>6.0	---	---	---	---	None
		February	2.0-6.0	>6.0	---	---	---	---	None
		March	2.0-6.0	>6.0	---	---	---	---	None
		April	2.0-6.0	>6.0	---	---	---	---	None
		November	2.0-6.0	>6.0	---	---	---	---	None
		December	2.0-6.0	>6.0	---	---	---	---	None
151KP: Kanza-----	D	January	0.0-3.0	>6.0	---	---	---	Very brief	Frequent
		February	0.0-3.0	>6.0	---	---	---	Very brief	Frequent
		March	0.0-3.0	>6.0	---	---	---	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	0.0-3.0	>6.0	---	---	---	Very brief	Frequent
Plevna-----	D	January	0.0-2.0	>6.0	---	---	---	---	None
		February	0.0-2.0	>6.0	---	---	---	---	None
		March	0.0-2.0	>6.0	---	---	---	Long	Frequent
		April	0.0-2.0	>6.0	---	---	---	Long	Frequent
		May	0.0-2.0	>6.0	---	---	---	Long	Frequent
		June	0.0-2.0	>6.0	---	---	---	Long	Frequent
		July	0.0-2.0	>6.0	---	---	---	Long	Frequent
		August	0.0-2.0	>6.0	---	---	---	Long	Frequent
		September	0.0-2.0	>6.0	---	---	---	Long	Frequent
		October	0.0-2.0	>6.0	---	---	---	Long	Frequent
		November	0.0-2.0	>6.0	---	---	---	---	None
		December	0.0-2.0	>6.0	---	---	---	---	None
159DP: Dillwyn-----	A	January	1.0-3.0	>6.0	---	---	---	---	None
		February	1.0-3.0	>6.0	---	---	---	---	None
		March	1.0-3.0	>6.0	---	---	---	---	None
		April	1.0-3.0	>6.0	---	---	---	---	None
		May	1.0-3.0	>6.0	---	---	---	---	None
		June	1.0-3.0	>6.0	---	---	---	---	None
		July	1.0-3.0	>6.0	---	---	---	---	None
		August	1.0-3.0	>6.0	---	---	---	---	None
		September	1.0-3.0	>6.0	---	---	---	---	None
		October	1.0-3.0	>6.0	---	---	---	---	None
		November	1.0-3.0	>6.0	---	---	---	---	None
		December	1.0-3.0	>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
Plevna-----	D		Ft	Ft	Ft				
		January	0.0-2.0	>6.0	---	---	---	---	None
		February	0.0-2.0	>6.0	---	---	---	---	None
		March	0.0-2.0	>6.0	---	---	---	Long	Frequent
		April	0.0-2.0	>6.0	---	---	---	Long	Frequent
		May	0.0-2.0	>6.0	---	---	---	Long	Frequent
		June	0.0-2.0	>6.0	---	---	---	Long	Frequent
		July	0.0-2.0	>6.0	---	---	---	Long	Frequent
		August	0.0-2.0	>6.0	---	---	---	Long	Frequent
		September	0.0-2.0	>6.0	---	---	---	Long	Frequent
		October	0.0-2.0	>6.0	---	---	---	Long	Frequent
		November	0.0-2.0	>6.0	---	---	---	---	None
		December	0.0-2.0	>6.0	---	---	---	---	None
159DT: Dillwyn-----	A								
		January	1.0-3.0	>6.0	---	---	---	---	None
		February	1.0-3.0	>6.0	---	---	---	---	None
		March	1.0-3.0	>6.0	---	---	---	---	None
		April	1.0-3.0	>6.0	---	---	---	---	None
		May	1.0-3.0	>6.0	---	---	---	---	None
		June	1.0-3.0	>6.0	---	---	---	---	None
		July	1.0-3.0	>6.0	---	---	---	---	None
		August	1.0-3.0	>6.0	---	---	---	---	None
		September	1.0-3.0	>6.0	---	---	---	---	None
		October	1.0-3.0	>6.0	---	---	---	---	None
		November	1.0-3.0	>6.0	---	---	---	---	None
		December	1.0-3.0	>6.0	---	---	---	---	None
Tivoli-----	A		---	---	---	---	---	---	---
159DU: Drummond-----	D								
		January	2.0-6.0	>6.0	---	---	---	---	None
		February	2.0-6.0	>6.0	---	---	---	---	None
		March	2.0-6.0	>6.0	---	---	---	---	None
		April	2.0-6.0	>6.0	---	---	---	---	None
		November	2.0-6.0	>6.0	---	---	---	---	None
		December	2.0-6.0	>6.0	---	---	---	---	None
159PE: Plevna-----	D								
		January	0.0-2.0	>6.0	---	---	---	---	None
		February	0.0-2.0	>6.0	---	---	---	---	None
		March	0.0-2.0	>6.0	---	---	---	Long	Frequent
		April	0.0-2.0	>6.0	---	---	---	Long	Frequent
		May	0.0-2.0	>6.0	---	---	---	Long	Frequent
		June	0.0-2.0	>6.0	---	---	---	Long	Frequent
		July	0.0-2.0	>6.0	---	---	---	Long	Frequent
		August	0.0-2.0	>6.0	---	---	---	Long	Frequent
		September	0.0-2.0	>6.0	---	---	---	Long	Frequent
		October	0.0-2.0	>6.0	---	---	---	Long	Frequent
		November	0.0-2.0	>6.0	---	---	---	---	None
		December	0.0-2.0	>6.0	---	---	---	---	None
990: Abbyville-----	C								
		February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	---	None
		May	2.0-4.0	>6.0	---	---	---	---	None
		June	2.0-4.0	>6.0	---	---	---	---	None
991: Abbyville, rarely flooded-	C								
		January	---	---	---	---	---	---	Rare
		February	2.0-4.0	>6.0	---	---	---	---	Rare
		March	2.0-4.0	>6.0	---	---	---	---	Rare
		April	2.0-4.0	>6.0	---	---	---	---	Rare
		May	2.0-4.0	>6.0	---	---	---	---	Rare
		June	2.0-4.0	>6.0	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare

(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
Kisiwa, occasionally flooded-----	D		Ft	Ft	Ft				
		January	0.0	1.5	0.0-2.0	Brief	Occasional	Long	Occasional
		February	5.4	>6.0					
			0.0	1.5	0.0-2.0	Brief	Occasional	Long	Occasional
		March	5.4	>6.0					
			0.0	1.5	0.0-2.0	Brief	Occasional	Long	Occasional
		April	5.4	>6.0					
			0.0	1.5	0.0-2.0	Brief	Occasional	Long	Occasional
		May	5.4	>6.0					
			0.0	1.5	0.0-2.0	Brief	Occasional	Long	Occasional
		June	5.4	>6.0					
			0.0	1.5	---	---	---	---	---
		July	5.4	>6.0					
		August	5.4	>6.0					
		September	0.0	1.5	---	---	---	---	---
			5.4	>6.0					
		October	0.0	1.5	---	---	---	---	---
			5.4	>6.0					
		November	0.0	1.5	---	---	---	---	---
			5.4	>6.0					
		December	0.0	1.5	---	---	---	---	---
			5.4	>6.0					
1005: Albion-----	B		---	---	---	---	---	---	---
1011: Albion-----	B		---	---	---	---	---	---	---
Shellabarger-----	B		---	---	---	---	---	---	---
1324: Carway-----	D		---	---	---	---	---	---	---
		January	0.0	2.0	0.3-1.0	Long	Occasional	---	None
		February	0.0	2.0	0.3-1.0	Long	Occasional	---	None
		March	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		April	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		May	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		June	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		July	---	---	0.3-1.0	Long	Occasional	---	None
		August	---	---	0.3-1.0	Brief	Rare	---	None
		September	---	---	0.3-1.0	Brief	Rare	---	None
		October	---	---	0.3-1.0	Long	Occasional	---	None
		November	---	---	0.3-1.0	Long	Occasional	---	None
		December	0.0	2.0	0.3-1.0	Long	Occasional	---	None
Carbika-----	D		---	---	---	---	---	---	---
		January	0.0	2.0	0.3-1.0	Long	Occasional	---	None
		February	0.0	2.0	0.3-1.0	Long	Occasional	---	None
		March	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		April	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		May	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		June	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		July	---	---	0.3-1.0	Long	Occasional	---	None
		August	---	---	0.0-0.5	Brief	Rare	---	None
		September	---	---	0.0-0.5	Brief	Rare	---	None
		October	---	---	0.3-1.0	Long	Occasional	---	None
		November	---	---	0.3-1.0	Long	Occasional	---	None
		December	0.0	2.0	0.3-1.0	Long	Occasional	---	None
1359: Clark-----	B		---	---	---	---	---	---	---
Ost-----	B		---	---	---	---	---	---	---
1553: Darlow-----	C		---	---	---	---	---	---	---
Elmer-----	C		---	---	---	---	---	---	---
1555: Dillhut-----	B		---	---	---	---	---	---	---
Plev-----	B		---	---	---	---	---	---	---
		February	0.5	4.0	---	---	---	---	None
		March	0.5	4.0	---	---	---	---	None
		April	0.5	4.0	---	---	---	---	None
		May	0.5	4.0	---	---	---	---	None
1556: Dillhut-----	B		---	---	---	---	---	---	---

(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
			Ft	Ft	Ft				
Solvay-----	D	February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	---	None
		May	2.0-4.0	>6.0	---	---	---	---	None
1725: Farnum-----	B		---	---	---	---	---	---	---
Funmar-----	C		---	---	---	---	---	---	---
1726: Farnum-----	B		---	---	---	---	---	---	---
Funmar-----	C		---	---	---	---	---	---	---
1985: Hayes-----	B		---	---	---	---	---	---	---
1986: Hayes-----	B		---	---	---	---	---	---	---
Solvay-----	D	February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	---	None
		May	2.0-4.0	>6.0	---	---	---	---	None
1987: Hayes-----	B		---	---	---	---	---	---	---
Turon-----	A		---	---	---	---	---	---	---
1988: Hayes-----	B		---	---	---	---	---	---	---
2110: 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
2381: Kanza-----	D	January	0.0-3.0	>6.0	---	---	---	Very brief	Frequent
		February	0.0-3.0	>6.0	---	---	---	Very brief	Frequent
		March	0.0-3.0	>6.0	---	---	---	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	0.0-3.0	>6.0	---	---	---	Very brief	Frequent
Ninnescah-----	B	February	2.0	>6.0	---	---	---	---	None
		March	2.0	>6.0	---	---	---	Long	Occasional
		April	2.0	>6.0	---	---	---	Long	Occasional
		May	2.0	>6.0	---	---	---	Long	Occasional
		June	2.0	>6.0	---	---	---	Long	Occasional
		July	---	---	---	---	---	Long	Occasional
		August	---	---	---	---	---	Long	Occasional
		September	---	---	---	---	---	Long	Occasional
		October	---	---	---	---	---	Long	Occasional
2556: Langdon-----	A		---	---	---	---	---	---	---
2958: Ninnescah-----	B	February	2.0	>6.0	---	---	---	---	None
		March	2.0	>6.0	---	---	---	Long	Occasional
		April	2.0	>6.0	---	---	---	Long	Occasional
		May	2.0	>6.0	---	---	---	Long	Occasional
		June	2.0	>6.0	---	---	---	Long	Occasional
		July	---	---	---	---	---	Long	Occasional
		August	---	---	---	---	---	Long	Occasional
		September	---	---	---	---	---	Long	Occasional
		October	---	---	---	---	---	Long	Occasional
3053: Ost-----	B		---	---	---	---	---	---	---
3180: Pratt-----	A		---	---	---	---	---	---	---

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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				
3181: Pratt-----	A		---	---	---	---	---	---	---
Turon-----	A		---	---	---	---	---	---	---
3511: Saltcreek-----	C		---	---	---	---	---	---	---
Naron, sandy substratum---	B		---	---	---	---	---	---	---
3512: Saltcreek-----	C		---	---	---	---	---	---	---
Naron-----	B		---	---	---	---	---	---	---
3520: Saxman-----	A	January	---	---	---	---	---	---	Rare
		February	2.0-3.0	>6.0	---	---	---	---	Rare
		March	2.0-3.0	>6.0	---	---	---	---	Rare
		April	2.0-3.0	>6.0	---	---	---	---	Rare
		May	2.0-3.0	>6.0	---	---	---	---	Rare
		June	2.0-3.0	>6.0	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
3540: Solvay-----	D	February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	---	None
		May	2.0-4.0	>6.0	---	---	---	---	None
3639: Taver-----	D		---	---	---	---	---	---	---
3640: Tivin-----	A		---	---	---	---	---	---	---
3641: Tivin-----	A		---	---	---	---	---	---	---
Dillhut-----	B		---	---	---	---	---	---	---
3644: Turon-----	A		---	---	---	---	---	---	---
Carway-----	D	January	0.0	2.0	0.3-1.0	Long	Occasional	---	None
		February	0.0	2.0	0.3-1.0	Long	Occasional	---	None
		March	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		April	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		May	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		June	0.0	2.0	0.3-1.0	Long	Frequent	---	None
		July	---	---	0.3-1.0	Long	Occasional	---	None
		August	---	---	0.3-1.0	Brief	Rare	---	None
		September	---	---	0.3-1.0	Brief	Rare	---	None
		October	---	---	0.3-1.0	Long	Occasional	---	None
		November	---	---	0.3-1.0	Long	Occasional	---	None
		December	0.0	2.0	0.3-1.0	Long	Occasional	---	None
3926: Water-----	---		---	---	---	---	---	---	---
An: Albion-----	B		---	---	---	---	---	---	---
At: Attica-----	B		---	---	---	---	---	---	---
Ba: Blanket-----	C		---	---	---	---	---	---	---
BIG: Big Salt Marsh-----	---		---	---	---	---	---	---	---
Ca:			---	---	---	---	---	---	---

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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
Carwile-----	D		Ft	Ft	Ft				
		January	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		November	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
		December	0.0	>6.0	0.0-1.0	Long	Frequent	---	None
Cw: Carwile-----	D								
		January	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		February	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		March	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		April	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		October	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		November	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		December	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
Cx: Clark-----	B		---	---	---	---	---	---	---
Dp: Dillwyn-----	A								
		January	1.0-3.0	>6.0	---	---	---	---	None
		February	1.0-3.0	>6.0	---	---	---	---	None
		March	1.0-3.0	>6.0	---	---	---	---	None
		April	1.0-3.0	>6.0	---	---	---	---	None
		May	1.0-3.0	>6.0	---	---	---	---	None
		June	1.0-3.0	>6.0	---	---	---	---	None
		July	1.0-3.0	>6.0	---	---	---	---	None
		August	1.0-3.0	>6.0	---	---	---	---	None
		September	1.0-3.0	>6.0	---	---	---	---	None
		October	1.0-3.0	>6.0	---	---	---	---	None
		November	1.0-3.0	>6.0	---	---	---	---	None
		December	1.0-3.0	>6.0	---	---	---	---	None
Plevna-----	D								
		January	0.0-2.0	>6.0	---	---	---	---	None
		February	0.0-2.0	>6.0	---	---	---	---	None
		March	0.0-2.0	>6.0	---	---	---	Long	Frequent
		April	0.0-2.0	>6.0	---	---	---	Long	Frequent
		May	0.0-2.0	>6.0	---	---	---	Long	Frequent
		June	0.0-2.0	>6.0	---	---	---	Long	Frequent
		July	0.0-2.0	>6.0	---	---	---	Long	Frequent
		August	0.0-2.0	>6.0	---	---	---	Long	Frequent
		September	0.0-2.0	>6.0	---	---	---	Long	Frequent
		October	0.0-2.0	>6.0	---	---	---	Long	Frequent
		November	0.0-2.0	>6.0	---	---	---	---	None
		December	0.0-2.0	>6.0	---	---	---	---	None
Dt: Dillwyn-----	A								
		January	1.0-3.0	>6.0	---	---	---	---	None
		February	1.0-3.0	>6.0	---	---	---	---	None
		March	1.0-3.0	>6.0	---	---	---	---	None
		April	1.0-3.0	>6.0	---	---	---	---	None
		May	1.0-3.0	>6.0	---	---	---	---	None
		June	1.0-3.0	>6.0	---	---	---	---	None
		July	1.0-3.0	>6.0	---	---	---	---	None
		August	1.0-3.0	>6.0	---	---	---	---	None
		September	1.0-3.0	>6.0	---	---	---	---	None
		October	1.0-3.0	>6.0	---	---	---	---	None
		November	1.0-3.0	>6.0	---	---	---	---	None
		December	1.0-3.0	>6.0	---	---	---	---	None
Tivoli-----	A		---	---	---	---	---	---	---
Fa: Farnum-----	B		---	---	---	---	---	---	---
Fr: Farnum-----	B		---	---	---	---	---	---	---
GRP: Gravel Pits-----	---		---	---	---	---	---	---	---
INT: 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
Kg:									

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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
Kingman-----	D		Ft	Ft	Ft				
		January	0.0-2.0	>6.0	---	---	---	Very brief	Occasional
		February	0.0-2.0	>6.0	---	---	---	Very brief	Occasional
		March	0.0-2.0	>6.0	---	---	---	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	0.0-2.0	>6.0	---	---	---	Very brief	Occasional
Na: Naron-----	B		---	---	---	---	---	---	---
NAA: Naron-----	B		---	---	---	---	---	---	---
NBB: Naron-----	B		---	---	---	---	---	---	---
Nu: Natrustolls-----	D								
		January	2.0-4.0	>6.0	---	---	---	---	None
		February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
		November	2.0-4.0	>6.0	---	---	---	---	None
		December	2.0-4.0	>6.0	---	---	---	---	None
Pa: Plevna-----	D								
		January	0.0-2.0	>6.0	---	---	---	---	None
		February	0.0-2.0	>6.0	---	---	---	---	None
		March	0.0-2.0	>6.0	---	---	---	Long	Frequent
		April	0.0-2.0	>6.0	---	---	---	Long	Frequent
		May	0.0-2.0	>6.0	---	---	---	Long	Frequent
		June	0.0-2.0	>6.0	---	---	---	Long	Frequent
		July	0.0-2.0	>6.0	---	---	---	Long	Frequent
		August	0.0-2.0	>6.0	---	---	---	Long	Frequent
		September	0.0-2.0	>6.0	---	---	---	Long	Frequent
		October	0.0-2.0	>6.0	---	---	---	Long	Frequent
		November	0.0-2.0	>6.0	---	---	---	---	None
		December	0.0-2.0	>6.0	---	---	---	---	None
Pc: Plevna-----	D								
		January	0.0-2.0	>6.0	---	---	---	---	None
		February	0.0-2.0	>6.0	---	---	---	---	None
		March	0.0-2.0	>6.0	---	---	---	Long	Frequent
		April	0.0-2.0	>6.0	---	---	---	Long	Frequent
		May	0.0-2.0	>6.0	---	---	---	Long	Frequent
		June	0.0-2.0	>6.0	---	---	---	Long	Frequent
		July	0.0-2.0	>6.0	---	---	---	Long	Frequent
		August	0.0-2.0	>6.0	---	---	---	Long	Frequent
		September	0.0-2.0	>6.0	---	---	---	Long	Frequent
		October	0.0-2.0	>6.0	---	---	---	Long	Frequent
		November	0.0-2.0	>6.0	---	---	---	---	None
		December	0.0-2.0	>6.0	---	---	---	---	None
Ph: Pratt-----	A								
			---	---	---	---	---	---	---
Po: Pratt-----	A								
			---	---	---	---	---	---	---
Pr: Pratt-----	A								
			---	---	---	---	---	---	---



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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
Carwile-----	D		Ft	Ft	Ft				
		January	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		February	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		March	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		April	0.0	>6.0	0.0-1.0	Brief	Frequent	---	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	Brief	Frequent	---	None
		November	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
		December	0.0	>6.0	0.0-1.0	Brief	Frequent	---	None
Pt: Pratt-----	A		---	---	---	---	---	---	---
Tivoli-----	A		---	---	---	---	---	---	---
Ta: Tabler-----	D		---	---	---	---	---	---	---
TAA: Tabler-----	D		---	---	---	---	---	---	---
Tv: Tivoli-----	A		---	---	---	---	---	---	---
W: Water-----	---		---	---	---	---	---	---	---
Wa: Waldeck-----	C								
		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	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
		October	2.0-4.0	>6.0	---	---	---	Brief	Occasional
		November	2.0-4.0	>6.0	---	---	---	---	None
		December	2.0-4.0	>6.0	---	---	---	---	None
Za: Zenda-----	C								
		January	2.0-4.0	>6.0	---	---	---	---	None
		February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
		October	2.0-4.0	>6.0	---	---	---	---	None
		November	2.0-4.0	>6.0	---	---	---	---	None
		December	2.0-4.0	>6.0	---	---	---	---	None
Natrustolls-----	D								
		January	2.0-4.0	>6.0	---	---	---	---	None
		February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
		October	2.0-4.0	>6.0	---	---	---	---	None
		November	2.0-4.0	>6.0	---	---	---	---	None
		December	2.0-4.0	>6.0	---	---	---	---	None
ZSS: Drummond-----	D								
		January	2.0-4.0	>6.0	---	---	---	---	None
		February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	---	None
		November	2.0-4.0	>6.0	---	---	---	---	None
		December	2.0-4.0	>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
Zenda-----	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	---	---	---	---	None
		April	2.0-4.0	>6.0	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
		October	2.0-4.0	>6.0	---	---	---	---	None
		November	2.0-4.0	>6.0	---	---	---	---	None
		December	2.0-4.0	>6.0	---	---	---	---	None

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				
009DT:							
Dillwyn-----	---	---	---	---	Low	Low	Low
Tivoli-----	---	---	---	---	Low	Low	Low
009TV:							
Tivoli-----	---	---	---	---	Low	Low	Low
047CS:							
Carwile-----	---	---	---	---	Low	High	Moderate
Drummond-----	---	---	---	---	Low	High	High
151KP:							
Kanza-----	---	---	---	---	Low	High	Moderate
Plevna-----	---	---	---	---	Low	High	Low
159DP:							
Dillwyn-----	---	---	---	---	Low	Low	Low
Plevna-----	---	---	---	---	Low	High	Low
159DT:							
Dillwyn-----	---	---	---	---	Low	Low	Low
Tivoli-----	---	---	---	---	Low	Low	Low
159DU:							
Drummond-----	---	---	---	---	Low	High	High
159PE:							
Plevna-----	---	---	---	---	Low	High	Low
990:							
Abbyville-----	---	---	---	---	Low	High	Low
991:							
Abbyville, rarely flooded-	---	---	---	---	Low	High	Low
Kisiwa, occasionally flooded-----	---	---	---	---	Low	High	Low
1005:							
Albion-----	---	---	---	---	Low	Low	Low
1011:							
Albion-----	---	---	---	---	Low	Low	Low
Shellabarger----	---	---	---	---	Low	Low	Moderate
1324:							
Carway-----	---	---	---	---	Low	High	Moderate
Carbika-----	---	---	---	---	Low	Moderate	Low
1359:							
Clark-----	---	---	---	---	Low	Moderate	Low
Ost-----	---	---	---	---	Low	Moderate	Low
1553:							
Darlow-----	---	---	---	---	Low	High	Low
Elmer-----	---	---	---	---	Low	High	Low
1555:							
Dillhut-----	---	---	---	---	Low	Low	Moderate
Plev-----	---	---	---	---	Low	High	Moderate
1556:							
Dillhut-----	---	---	---	---	Low	Low	Moderate
Solvay-----	---	---	---	---	Low	High	Moderate
1725:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Funmar-----	---	---	---	---	Low	Moderate	Low
1726:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Funmar-----	---	---	---	---	Low	Moderate	Low
1985:							
Hayes-----	---	---	---	---	Low	Moderate	Low
1986:							
Hayes-----	---	---	---	---	Low	Moderate	Low
Solvay-----	---	---	---	---	Low	High	Moderate
1987:							
Hayes-----	---	---	---	---	Low	Moderate	Low
Turon-----	---	---	---	---	Low	Low	Moderate
1988:							
Hayes-----	---	---	---	---	Low	Moderate	Low
2381:							
Kanza-----	---	---	---	---	Low	High	Moderate
Ninnescah-----	---	---	---	---	Low	High	Low
2556:							
Langdon-----	---	---	---	---	Low	Low	Low
2958:							
Ninnescah-----	---	---	---	---	Low	High	Low
3053:							
Ost-----	---	---	---	---	Low	Moderate	Low
3180:							
Pratt-----	---	---	---	---	Low	Low	Moderate
3181:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Turon-----	---	---	---	---	Low	Low	Moderate
3511:							
Saltcreek-----	---	---	---	---	Low	Moderate	Low
Naron, sandy substratum-----	---	---	---	---	Low	Low	Low
3512:							
Saltcreek-----	---	---	---	---	Low	Moderate	Low
Naron-----	---	---	---	---	Low	Low	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				
3520:							
Saxman-----	---	---	---	---	Low	Low	High
3540:							
Solvay-----	---	---	---	---	Low	High	Moderate
3639:							
Taver-----	---	---	---	---	Low	High	Low
3640:							
Tivin-----	---	---	---	---	Low	Low	Low
3641:							
Tivin-----	---	---	---	---	Low	Low	Low
Dillhut-----	---	---	---	---	Low	Low	Moderate
3644:							
Turon-----	---	---	---	---	Low	Low	Moderate
Carway-----	---	---	---	---	Low	High	Moderate
3926:							
Water-----	---	---	---	---	Low	---	---
An:							
Albion-----	---	---	---	---	Low	Low	Low
At:							
Attica-----	---	---	---	---	Low	Low	Low
Ba:							
Blanket-----	---	---	---	---	Low	High	Low
BIG:							
Big Salt Marsh--	---	---	---	---	Low	---	---
Ca:							
Carwile-----	---	---	---	---	Low	High	Moderate
Cw:							
Carwile-----	---	---	---	---	Low	High	Moderate
Cx:							
Clark-----	---	---	---	---	Low	Moderate	Low
Dp:							
Dillwyn-----	---	---	---	---	Low	Low	Low
Plevna-----	---	---	---	---	Low	High	Low
Dt:							
Dillwyn-----	---	---	---	---	Low	Low	Low
Tivoli-----	---	---	---	---	Low	Low	Low
Fa:							
Farnum-----	---	---	---	---	Low	Moderate	Low
Fr:							
Farnum-----	---	---	---	---	Low	Moderate	Low
GRP:							
Gravel Pits-----	---	---	---	---	Low	---	---
INT:							
Aquolls-----	---	---	---	---	Low	---	---
Kg:							
Kingman-----	---	---	---	---	Low	High	Low
M-W:							
Miscellaneous	---	---	---	---	---	---	---
Water-----							
Na:							
Naron-----	---	---	---	---	Low	Low	Low
NAA:							
Naron-----	---	---	---	---	Low	Low	Low
NBB:							
Naron-----	---	---	---	---	Low	Low	Low
Nu:							
Natrustolls-----	---	---	---	---	Low	High	High
Pa:							
Plevna-----	---	---	---	---	Low	High	Low
Pc:							
Plevna-----	---	---	---	---	Low	High	Low
Ph:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Po:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Pr:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Carwile-----	---	---	---	---	Low	High	Moderate
Pt:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Tivoli-----	---	---	---	---	Low	Low	Low
Ta:							
Tabler-----	---	---	---	---	Low	High	Low
TAA:							
Tabler-----	---	---	---	---	Low	High	Low
Tv:							
Tivoli-----	---	---	---	---	Low	Low	Low
W:							
Water-----	---	---	---	---	Low	---	---
Wa:							
Waldeck-----	---	---	---	---	Low	Moderate	Low
Za:							
Zenda-----	---	---	---	---	Low	High	Low
Natrustolls-----	---	---	---	---	Low	High	High
ZSS:							
Drummond-----	---	---	---	---	Low	High	High
Zenda-----	---	---	---	---	Low	High	Low

WATER MANAGEMENT  
Stafford 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  
Stafford 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
009DT: Dillwyn-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: wetness droughty
Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
009TV: Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
047CS: Carwile-----	Limitation: percs slowly	Limitation: percs slowly wetness soil blowing	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily percs slowly rooting depth
Drummond-----	Limitation: excess sodium percs slowly	Limitation: percs slowly wetness droughty	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily excess sodium droughty
151KP: Kanza-----	Limitation: flooding cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: wetness droughty
Plevna-----	Limitation: flooding	Limitation: flooding wetness soil blowing	Limitation: wetness soil blowing	Limitation: wetness
159DP: Dillwyn-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: wetness droughty
Plevna-----	Limitation: flooding cutbanks cave	Limitation: fast intake wetness soil blowing	Limitation: too sandy wetness soil blowing	Limitation: wetness
159DT: Dillwyn-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: wetness droughty
Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
159DU: Drummond-----	Limitation: excess sodium percs slowly	Limitation: percs slowly wetness droughty	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily excess sodium droughty
159PE: Plevna-----	Limitation: flooding cutbanks cave	Limitation: flooding wetness soil blowing	Limitation: too sandy wetness soil blowing	Limitation: wetness
990: Abbyville-----	Limitation: excess sodium	Limitation: excess sodium excess salt wetness	Limitation: wetness	Limitation: excess sodium
991: Abbyville, rarely flooded-	Limitation: excess sodium	Limitation: excess sodium excess salt wetness	Limitation: wetness	Limitation: excess sodium
Kisiwa, occasionally flooded-----	Limitation: excess sodium percs slowly ponding	Limitation: excess sodium percs slowly ponding	Limitation: erodes easily percs slowly ponding	Limitation: erodes easily excess sodium wetness
1005: Albion-----	Limitation: deep to water	Limitation: soil blowing	Limitation: too sandy soil blowing	Favorable
1011: Albion-----	Limitation: deep to water	Limitation: soil blowing	Limitation: too sandy soil blowing	Favorable

WATER MANAGEMENT--Continued  
Stafford 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
Shellabarger----	Limitation: deep to water	Favorable	Limitation: soil blowing	Favorable
1324: Carway-----	Limitation: percs slowly	Limitation: wetness soil blowing	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily percs slowly wetness
Carbika-----	Limitation: percs slowly ponding	Limitation: percs slowly soil blowing ponding	Limitation: erodes easily soil blowing ponding	Limitation: erodes easily percs slowly wetness
1359: Clark-----	Limitation: deep to water	Favorable	Favorable	Favorable
Ost-----	Limitation: deep to water	Favorable	Favorable	Favorable
1553: Darlow-----	Limitation: deep to water	Limitation: excess sodium excess salt percs slowly	Limitation: percs slowly	Limitation: excess sodium percs slowly
Elmer-----	Limitation: deep to water	Limitation: excess sodium soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily excess sodium
1555: Dillhut-----	Favorable	Limitation: wetness droughty	Limitation: wetness soil blowing	Limitation: droughty
Plev-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: wetness droughty
1556: Dillhut-----	Favorable	Limitation: wetness droughty	Limitation: wetness soil blowing	Limitation: droughty
Solvay-----	Favorable	Limitation: wetness soil blowing	Limitation: wetness soil blowing	Favorable
1725: Farnum-----	Limitation: deep to water	Favorable	Favorable	Favorable
Funmar-----	Limitation: deep to water	Limitation: percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly
1726: Farnum-----	Limitation: deep to water	Favorable	Favorable	Favorable
Funmar-----	Limitation: deep to water	Limitation: percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly
1985: Hayes-----	Limitation: deep to water	Limitation: fast intake soil blowing	Limitation: soil blowing	Favorable
1986: Hayes-----	Limitation: deep to water	Limitation: fast intake soil blowing	Limitation: soil blowing	Favorable
Solvay-----	Favorable	Limitation: wetness soil blowing	Limitation: wetness soil blowing	Favorable
1987: Hayes-----	Limitation: deep to water	Limitation: fast intake soil blowing	Limitation: soil blowing	Favorable
Turon-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
1988: Hayes-----	Limitation: deep to water	Limitation: fast intake soil blowing	Limitation: soil blowing	Favorable
2381: Kanza-----	Limitation: flooding cutbanks cave	Limitation: wetness droughty	Limitation: too sandy wetness	Limitation: wetness droughty
Ninnescah-----	Limitation: flooding cutbanks cave	Limitation: wetness soil blowing	Limitation: too sandy wetness soil blowing	Limitation: wetness



WATER MANAGEMENT--Continued  
Stafford 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
2556: Langdon-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
2958: Ninnescah-----	Limitation: flooding cutbanks cave	Limitation: flooding wetness soil blowing	Limitation: too sandy wetness soil blowing	Limitation: wetness
3053: Ost-----	Limitation: deep to water	Favorable	Favorable	Favorable
3180: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
3181: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
Turon-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
3511: Saltcreek-----	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily percs slowly soil blowing	Limitation: erodes easily percs slowly
Naron, sandy substratum-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
3512: Saltcreek-----	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily percs slowly soil blowing	Limitation: erodes easily percs slowly
Naron-----	Limitation: deep to water	Favorable	Limitation: soil blowing	Favorable
3520: Saxman-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: droughty
3540: Solvay-----	Favorable	Limitation: wetness soil blowing	Limitation: wetness soil blowing	Favorable
3639: Taver-----	Limitation: deep to water	Limitation: percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly
3640: Tivin-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
3641: Tivin-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
Dillhut-----	Favorable	Limitation: wetness droughty	Limitation: wetness soil blowing	Limitation: droughty
3644: Turon-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
Carway-----	Limitation: percs slowly	Limitation: wetness soil blowing	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily percs slowly wetness
3926: Water-----	---	---	---	---
An: Albion-----	Limitation: deep to water	Limitation: soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
At: Attica-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable

WATER MANAGEMENT--Continued  
Stafford 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
Ba: Blanket-----	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily
BIG: Big Salt Marsh--	---	---	---	---
Ca: Carwile-----	Limitation: percs slowly	Limitation: percs slowly wetness soil blowing	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily percs slowly rooting depth
Cw: Carwile-----	Limitation: percs slowly	Limitation: percs slowly wetness soil blowing	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily percs slowly rooting depth
Cx: Clark-----	Limitation: deep to water	Favorable	Favorable	Favorable
Dp: Dillwyn-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: wetness droughty
Plevna-----	Limitation: flooding	Limitation: flooding wetness soil blowing	Limitation: wetness soil blowing	Limitation: wetness
Dt: Dillwyn-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: wetness droughty
Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
Fa: Farnum-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
Fr: Farnum-----	Limitation: deep to water	Favorable	Favorable	Favorable
GRP: Gravel Pits----	---	---	---	---
INT: Aquolls-----	---	---	---	---
Kg: Kingman-----	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Limitation: wetness
M-W: Miscellaneous Water-----	---	---	---	---
Na: Naron-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
NAA: Naron-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
NBB: Naron-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
Nu: Natrustolls----	Limitation: excess salt flooding percs slowly	Limitation: percs slowly wetness droughty	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily excess sodium excess salt
Pa: Plevna-----	Limitation: flooding	Limitation: flooding wetness soil blowing	Limitation: wetness soil blowing	Limitation: wetness
Pc: Plevna-----	Limitation: flooding	Limitation: flooding wetness soil blowing	Limitation: wetness soil blowing	Limitation: wetness
Ph: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty

WATER MANAGEMENT--Continued  
Stafford 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
Po: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
Pr: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
Carwile-----	Limitation: percs slowly	Limitation: percs slowly wetness soil blowing	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily percs slowly rooting depth
Pt: Pratt-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: droughty
Tivoli-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope droughty
Ta: Tabler-----	Limitation: percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly
TAA: Tabler-----	Limitation: percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	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
W: Water-----	---	---	---	---
Wa: Waldeck-----	Limitation: flooding cutbanks cave	Limitation: flooding wetness soil blowing	Limitation: too sandy wetness soil blowing	Favorable
Za: Zenda-----	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
Natrustolls----	Limitation: excess salt flooding percs slowly	Limitation: percs slowly wetness droughty	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily excess sodium excess salt
ZSS: Drummond-----	Limitation: excess sodium excess salt percs slowly	Limitation: percs slowly wetness droughty	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily excess sodium excess salt
Zenda-----	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable

WATER MANAGEMENT--Continued  
Stafford 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
009DT: Dillwyn-----	60	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.18	Very limited Cutbanks cave Deep to water	1.00 0.00
Tivoli-----	40	Very limited Seepage	1.00	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
009TV: Tivoli-----	100	Very limited Seepage Slope	1.00 0.08	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
047CS: Carwile-----	90	Somewhat limited Seepage	0.57	Very limited Ponding Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Drummond-----	10	Not limited		Somewhat limited Seepage	0.09	Somewhat limited Deep to water Cutbanks cave Salty water	0.81 0.10 0.01
151KP: Kanza-----	50	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.98	Very limited Cutbanks cave	1.00
Plevna-----	50	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 1.00	Very limited Cutbanks cave	1.00
159DP: Dillwyn-----	60	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.18	Very limited Cutbanks cave Deep to water	1.00 0.00
Plevna-----	40	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 1.00	Very limited Cutbanks cave	1.00
159DT: Dillwyn-----	60	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave Deep to water	1.00 0.00
Tivoli-----	40	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
159DU: Drummond-----	100	Not limited		Not limited		Somewhat limited Deep to water Cutbanks cave Salty water	0.81 0.10 0.01
159PE: Plevna-----	100	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 1.00	Very limited Cutbanks cave	1.00
990: Abbyville-----	95	Not limited		Very limited Piping Depth to saturated zone Seepage	1.00 0.43 0.04	Very limited Slow refill Deep to water Cutbanks cave Salty water	1.00 0.25 0.10 0.01
991: Abbyville, rarely flooded-----	45	Not limited		Very limited		Very limited	

WATER MANAGEMENT--Continued  
Stafford 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
Kisiwa, occasionally flooded-----	40	Very limited  Seepage	1.00	Very limited  Ponding Depth to saturated zone Seepage Piping	1.00 0.43 0.04 1.00 1.00	Very limited  Slow refill Deep to water Cutbanks cave Salty water	1.00 0.25 0.10 0.01
1005: Albion-----	75	Very limited Seepage	1.00	Somewhat limited Seepage	0.90	Very limited Deep to water	1.00
1011: Albion-----	70	Very limited Seepage	1.00	Somewhat limited Seepage	0.90	Very limited Deep to water	1.00
Shellabarger-----	30	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.88	Very limited Deep to water	1.00
1324: Carway-----	50	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Deep to water	1.00
Carbika-----	30	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.40	Very limited Deep to water	1.00
1359: Clark-----	70	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.52	Very limited Deep to water	1.00
Ost-----	30	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.82	Very limited Deep to water	1.00
1553: Darlow-----	70	Somewhat limited Seepage	0.70	Very limited Piping Salinity Seepage	1.00 0.12 0.12	Very limited Deep to water	1.00
Elmer-----	20	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.10	Very limited Deep to water	1.00
1555: Dillhut-----	35	Very limited Seepage	1.00	Somewhat limited Seepage	0.13	Very limited Deep to water	1.00
Plev-----	35	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Deep to water	1.00
1556: Dillhut-----	30	Very limited Seepage	1.00	Somewhat limited Seepage	0.13	Very limited Deep to water	1.00
Solvay-----	30	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.56 0.43	Very limited Cutbanks cave Deep to water	1.00 0.25
1725: Farnum-----	40	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.01	Very limited Deep to water	1.00
Funmar-----	40	Somewhat limited Seepage	0.05	Not limited		Very limited Deep to water	1.00

WATER MANAGEMENT--Continued  
Stafford 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
1726: Farnum-----	40	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.01	Very limited Deep to water	1.00
Funmar-----	40	Somewhat limited Seepage	0.05	Not limited		Very limited Deep to water	1.00
1985: Hayes-----	60	Very limited Seepage	1.00	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
1986: Hayes-----	55	Very limited Seepage	1.00	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
Solvay-----	20	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.44 0.43	Very limited Cutbanks cave Deep to water	1.00 0.25
1987: Hayes-----	40	Very limited Seepage	1.00	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
Turon-----	35	Very limited Seepage	1.00	Somewhat limited Piping Seepage	0.87 0.77	Very limited Deep to water	1.00
1988: Hayes-----	70	Very limited Seepage	1.00	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
2381: Kanza-----	50	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.90	Very limited Cutbanks cave	1.00
Ninnescah-----	50	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.12	Very limited Cutbanks cave Deep to water	1.00 0.00
2556: Langdon-----	50	Very limited Seepage	1.00	Somewhat limited Seepage	0.50	Very limited Deep to water	1.00
2958: Ninnescah-----	85	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.12	Very limited Cutbanks cave Deep to water	1.00 0.00
3053: Ost-----	85	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.82	Very limited Deep to water	1.00
3180: Pratt-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Deep to water	1.00
3181: Pratt-----	45	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Deep to water	1.00
Turon-----	30	Very limited Seepage	1.00	Somewhat limited Piping Seepage	0.87 0.77	Very limited Deep to water	1.00
3511: Saltcreek-----	70	Somewhat limited Seepage	0.70	Not limited		Very limited Deep to water	1.00
Naron, sandy substratum-----	30	Very limited Seepage	1.00	Somewhat limited Seepage	0.90	Very limited Deep to water	1.00
3512: Saltcreek-----	50	Somewhat limited		Not limited		Very limited	

WATER MANAGEMENT--Continued  
Stafford 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
Naron-----	50	Seepage	0.70			Deep to water	1.00
		Very limited Seepage	1.00	Somewhat limited Seepage	0.55	Very limited Deep to water	1.00
3520: Saxman-----	85	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 0.86	Very limited Cutbanks cave Deep to water	1.00 0.06
3540: Solvay-----	90	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.44 0.43	Very limited Cutbanks cave Deep to water	1.00 0.25
3639: Taver-----	90	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.00	Very limited Deep to water	1.00
3640: Tivin-----	95	Very limited Seepage Slope	1.00 0.03	Very limited Seepage	1.00	Very limited Deep to water	1.00
3641: Tivin-----	45	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Dillhut-----	40	Very limited Seepage	1.00	Somewhat limited Seepage	0.13	Very limited Deep to water	1.00
3644: Turon-----	65	Very limited Seepage	1.00	Somewhat limited Piping Seepage	0.87 0.77	Very limited Deep to water	1.00
Carway-----	20	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Deep to water	1.00
3926: Water-----	100	Not rated		Not rated		Not rated	
An: Albion-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.91	Very limited Deep to water	1.00
At: Attica-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Deep to water	1.00
Ba: Blanket-----	100	Somewhat limited Seepage	0.70	Somewhat limited Hard to pack	0.37	Very limited Deep to water	1.00
BIG: Big Salt Marsh-----	100	Not rated		Not rated		Not rated	
Ca: Carwile-----	100	Somewhat limited Seepage	0.57	Very limited Ponding Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Cw: Carwile-----	100	Somewhat limited Seepage	0.57	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.02	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Cx: Clark-----	100	Somewhat limited		Somewhat limited		Very limited	

WATER MANAGEMENT--Continued  
Stafford 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	0.12	Deep to water	1.00
Dp: Dillwyn-----	65	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
Plevna-----	35	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 1.00	Deep to water	0.00
						Very limited Cutbanks cave	1.00
Dt: Dillwyn-----	65	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
						Deep to water	0.00
Tivoli-----	35	Very limited Seepage	1.00	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
Fa: Farnum-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.36	Very limited Deep to water	1.00
Fr: Farnum-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.23	Very limited Deep to water	1.00
GRP: Gravel Pits-----	100	Not rated		Not rated		Not rated	
INT: Aquolls-----	100	Very limited Seepage	1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Somewhat limited Cutbanks cave	0.10
Kg: Kingman-----	100	Somewhat limited Seepage	0.57	Very limited Depth to saturated zone Seepage Piping	1.00 0.08 0.07	Somewhat limited Slow refill	0.43
						Cutbanks cave	0.10
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Na: Naron-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.08	Very limited Deep to water	1.00
NAA: Naron-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.08	Very limited Deep to water	1.00
NBB: Naron-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.08	Very limited Deep to water	1.00
Nu: Natrustolls-----	100	Not limited		Somewhat limited Depth to saturated zone Salinity	0.43 0.12	Somewhat limited Salty water	0.50
						Deep to water	0.25
						Cutbanks cave	0.10
Pa: Plevna-----	100	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 1.00	Very limited Cutbanks cave	1.00
Pc: Plevna-----	100	Very limited		Very limited		Very limited	



WATER MANAGEMENT--Continued  
Stafford 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	1.00	Seepage Depth to saturated zone	1.00 1.00	Cutbanks cave	1.00
Ph: Pratt-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Po: Pratt-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Pr: Pratt-----	60	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Carwile-----	40	Somewhat limited Seepage	0.57	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.02	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Pt: Pratt-----	65	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Tivoli-----	35	Very limited Seepage	1.00	Somewhat limited Seepage	0.99	Very limited Deep to water	1.00
Ta: Tabler-----	100	Not limited		Somewhat limited Hard to pack	0.19	Very limited Deep to water	1.00
TAA: Tabler-----	100	Not limited		Somewhat limited Hard to pack	0.17	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
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Waldeck-----	100	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 0.43	Very limited Cutbanks cave Deep to water	1.00 0.25
Za: Zenda-----	80	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.43 0.25	Somewhat limited Slow refill Deep to water Cutbanks cave	0.30 0.25 0.10
Natrustolls-----	20	Not limited		Somewhat limited Depth to saturated zone Salinity	0.43 0.12	Somewhat limited Salty water Deep to water Cutbanks cave	0.50 0.25 0.10
ZSS: Drummond-----	50	Not limited		Somewhat limited Depth to saturated zone Salinity	0.43 0.12	Somewhat limited Salty water Deep to water Cutbanks cave	0.50 0.25 0.10
Zenda-----	50	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.43 0.15	Somewhat limited Slow refill Deep to water Cutbanks cave	0.30 0.25 0.10

SANITARY FACILITIES  
Stafford 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  
Stafford 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  
Stafford 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
009DT: Dillwyn-----	60	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
Tivoli-----	40	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Slope	0.16	Slope	1.00
009TV: Tivoli-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Slope	1.00	Slope	1.00
047CS: Carwile-----	90	Very limited Restricted permeability	1.00	Very limited Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.32
Drummond-----	10	Very limited Restricted permeability	1.00	Somewhat limited Depth to saturated zone	0.71
		Depth to saturated zone	1.00		
151KP: Kanza-----	50	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
Plevna-----	50	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
159DP: Dillwyn-----	60	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
Plevna-----	40	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
159DT: Dillwyn-----	60	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
Tivoli-----	40	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Slope	0.84	Slope	1.00
159DU: Drummond-----	100	Very limited Restricted permeability	1.00	Somewhat limited Depth to saturated zone	0.71
		Depth to saturated zone	1.00		
159PE: Plevna-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
990: Abbyville-----	95	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00

SANITARY FACILITIES--Continued  
Stafford 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
991: Abbyville, rarely flooded-----	45	Depth to saturated zone Very limited	1.00	Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40
Kisiwa, occasionally flooded-----	40	Flooding Very limited	0.40	Very limited	
		Flooding	1.00	Ponding	1.00
		Restricted permeability	1.00	Flooding	1.00
		Ponding	1.00	Seepage	1.00
		Depth to saturated zone	1.00		
		Filtering capacity	1.00		
1005: Albion-----	75	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
				Slope	0.09
1011: Albion-----	70	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
				Slope	0.09
Shellabarger-----	30	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
				Slope	0.00
1324: Carway-----	50	Very limited Restricted permeability	1.00	Very limited Ponding	1.00
		Ponding	1.00	Seepage	0.50
		Depth to saturated zone	1.00		
Carbika-----	30	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Seepage	0.50
		Restricted permeability	0.50		
1359: Clark-----	70	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
				Slope	0.33
Ost-----	30	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
1553: Darlow-----	70	Very limited Restricted permeability	1.00	Not limited	
Elmer-----	20	Very limited Restricted permeability	1.00	Very limited Seepage	1.00
1555: Dillhut-----	35	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Restricted permeability	0.50	Slope	0.00
Plev-----	35	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Filtering capacity	1.00		
		Restricted permeability	0.50		
1556: Dillhut-----	30	Very limited Filtering capacity	1.00	Very limited Seepage	1.00

SANITARY FACILITIES--Continued  
Stafford 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
Solvay-----	30	Restricted permeability	0.50	Slope	0.00
		Very limited	1.00	Very limited	1.00
		Depth to saturated zone	0.68	Depth to saturated zone	1.00
1725: Farnum-----	40	Somewhat limited	0.50	Somewhat limited	0.50
		Restricted permeability	1.00	Seepage	
Funmar-----	40	Very limited	1.00	Not limited	
		Restricted permeability			
1726: Farnum-----	40	Somewhat limited	0.50	Somewhat limited	0.50
		Restricted permeability		Seepage	
Funmar-----	40	Very limited	1.00	Slope	0.00
		Restricted permeability	1.00	Somewhat limited	0.00
1985: Hayes-----	60	Very limited	1.00	Very limited	1.00
		Restricted permeability		Seepage	
				Slope	0.09
1986: Hayes-----	55	Very limited	1.00	Very limited	1.00
		Restricted permeability		Seepage	
				Slope	0.09
Solvay-----	20	Very limited	1.00	Very limited	1.00
		Depth to saturated zone	0.68	Seepage	
		Restricted permeability		Depth to saturated zone	1.00
1987: Hayes-----	40	Very limited	1.00	Very limited	1.00
		Restricted permeability		Seepage	
				Slope	0.09
Turon-----	35	Very limited	1.00	Very limited	1.00
		Restricted permeability	1.00	Seepage	
		Filtering capacity		Slope	0.09
1988: Hayes-----	70	Very limited	1.00	Very limited	1.00
		Restricted permeability		Seepage	
				Slope	0.91
2381: Kanza-----	50	Very limited	1.00	Very limited	1.00
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	
		Filtering capacity		Depth to saturated zone	1.00
Ninnescah-----	50	Very limited	1.00	Very limited	1.00
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	
		Filtering capacity		Depth to saturated zone	1.00
2556: Langdon-----	50	Very limited	1.00	Very limited	1.00
		Filtering capacity	0.00	Seepage	
		Slope		Slope	1.00
2958: Ninnescah-----	85	Very limited	1.00	Very limited	1.00
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	
		Filtering capacity		Depth to saturated zone	1.00
3053: Ost-----	85	Very limited		Somewhat limited	

SANITARY FACILITIES--Continued  
Stafford 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
3180: Pratt-----	85	Restricted permeability	1.00	Slope	0.00
		Very limited Filtering capacity	1.00	Very limited Seepage	1.00
3181: Pratt-----	45			Slope	1.00
		Very limited Filtering capacity	1.00	Very limited Seepage	1.00
Turon-----	30			Slope	0.09
		Very limited Restricted permeability	1.00	Very limited Seepage	1.00
3511: Saltcreek-----	70	Filtering capacity	1.00	Slope	0.09
		Restricted permeability	1.00		
Naron, sandy substratum-----	30	Very limited		Somewhat limited Seepage	0.50
		Filtering capacity	1.00	Very limited	
3512: Saltcreek-----	50	Restricted permeability	0.50	Seepage	1.00
		Very limited			
Naron-----	50	Very limited Restricted permeability	1.00	Somewhat limited Seepage	0.50
		Filtering capacity	1.00	Slope	0.00
3520: Saxman-----	85	Restricted permeability	0.50	Very limited Seepage	1.00
		Very limited			
3540: Solvay-----	90	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Flooding	0.40
3639: Taver-----	90	Flooding	0.40		
		Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
3640: Tivin-----	95	Restricted permeability	0.68	Depth to saturated zone	1.00
		Very limited		Not limited	
3641: Tivin-----	45	Very limited Filtering capacity	1.00		
		Slope	1.00	Very limited Slope	1.00
Dillhut-----	40			Seepage	1.00
		Very limited Filtering capacity	1.00	Very limited Seepage	1.00
3644: Turon-----	65	Slope	0.16	Slope	1.00
		Very limited Restricted permeability	1.00	Very limited Seepage	1.00
Carway-----	20	Filtering capacity	1.00	Slope	0.09
		Restricted permeability	1.00	Very limited Seepage	1.00
		Ponding	1.00	Ponding	1.00
				Seepage	0.50

SANITARY FACILITIES--Continued  
Stafford 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
3926: Water-----	100	Depth to saturated zone Not rated	1.00	Not rated	
An: Albion-----	100	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.09
At: Attica-----	100	Not limited		Very limited Seepage Slope	1.00 0.09
Ba: Blanket-----	100	Very limited Restricted permeability	1.00	Somewhat limited Seepage	0.50
BIG: Big Salt Marsh-----	100	Not rated		Not rated	
Ca: Carwile-----	100	Very limited Restricted permeability Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.32
Cw: Carwile-----	100	Very limited Restricted permeability Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.32
Cx: Clark-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage Slope	0.50 0.00
Dp: Dillwyn-----	65	Very limited Depth to saturated zone Filtering capacity	1.00 1.00	Very limited Seepage Depth to saturated zone	1.00 1.00
Plevna-----	35	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
Dt: Dillwyn-----	65	Very limited Depth to saturated zone Filtering capacity	1.00 1.00	Very limited Seepage Depth to saturated zone	1.00 1.00
Tivoli-----	35	Very limited Filtering capacity Slope	1.00 0.16	Very limited Seepage Slope	1.00 1.00
Fa: Farnum-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
Fr: Farnum-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
GRP: Gravel Pits-----	100	Not rated		Not rated	
INT: Aguolls-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00



SANITARY FACILITIES--Continued  
Stafford 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
Kg: Kingman-----	100	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.32
M-W: Miscellaneous Water-	100	Not rated		Not rated	
Na: Naron-----	100	Somewhat limited Restricted permeability	0.50	Very limited Seepage Slope	1.00 0.00
NAA: Naron-----	100	Somewhat limited Restricted permeability	0.50	Very limited Seepage	1.00
NBB: Naron-----	100	Somewhat limited Restricted permeability	0.50	Very limited Seepage Slope	1.00 0.00
Nu: Natrustolls-----	100	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
Pa: Plevna-----	100	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
Pc: Plevna-----	100	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
Ph: Pratt-----	100	Very limited Filtering capacity Slope	1.00 0.00	Very limited Seepage Slope	1.00 1.00
Po: Pratt-----	100	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.09
Pr: Pratt-----	60	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.67
Carwile-----	40	Very limited Restricted permeability Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.32
Pt: Pratt-----	65	Very limited Filtering capacity Slope	1.00 0.00	Very limited Seepage Slope	1.00 1.00
Tivoli-----	35	Very limited Filtering capacity Slope	1.00 0.16	Very limited Seepage Slope	1.00 1.00
Ta: Tabler-----	100	Very limited Restricted permeability	1.00	Not limited	

SANITARY FACILITIES--Continued  
Stafford 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
TAA: Tabler-----	100	Very limited Restricted permeability	1.00	Not limited	
Tv: Tivoli-----	100	Very limited Filtering capacity Slope	1.00 0.84	Very limited Seepage Slope	1.00 1.00
W: Water-----	100	Not rated		Not rated	
Wa: Waldeck-----	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
Za: Zenda-----	80	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.50
Natrustolls-----	20	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
ZSS: Drummond-----	50	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
Zenda-----	50	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.50

SANITARY FACILITIES--Continued  
Stafford 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
009DT: Dillwyn-----	60	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage	1.00
Tivoli-----	40	Too Sandy Very limited Seepage Too Sandy Slope	1.00 1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Depth to saturated zone Too Sandy Very limited Too Sandy Seepage Slope	0.86 0.50 1.00 1.00 0.16
009TV: Tivoli-----	100	Very limited Seepage Too Sandy Slope	1.00 1.00 1.00	Very limited Seepage Slope	1.00 1.00	Very limited Too Sandy Seepage Slope	1.00 1.00 1.00
047CS: Carwile-----	90	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00 1.00
Drummond-----	10	Very limited Depth to saturated zone Seepage Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Hard to compact Too clayey	1.00 0.50
151KP: Kanza-----	50	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 1.00
Plevna-----	50	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 Depth to saturated zone Seepage	1.00 0.50
159DP: Dillwyn-----	60	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Depth to saturated zone Too Sandy	1.00 0.86 0.50
Plevna-----	40	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 Depth to saturated zone Seepage	1.00 1.00 0.50
159DT: Dillwyn-----	60	Very limited Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.86
Tivoli-----	40	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
159DU: Drummond-----	100	Very limited Depth to saturated zone Seepage Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Hard to compact Too clayey	1.00 0.50
159PE: Plevna-----	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 Depth to saturated zone Seepage	1.00 1.00 0.50
990: Abbyville-----	95	Very limited		Very limited		Very limited	

SANITARY FACILITIES--Continued  
Stafford 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
991: Abbyville, rarely flooded-----	45	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Sodium content	1.00			Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.09
		Very limited		Very limited		Very limited	
Kisiwa, occasionally flooded-----	40	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Sodium content	1.00	Flooding	0.40	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.09
		Flooding	0.40	Very limited		Very limited	
1005: Albion-----	75	Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Sodium content	1.00			Sodium content	1.00
1011: Albion-----	70	Seepage	1.00	Seepage	1.00	Too clayey	1.00
		Too Sandy	1.00			Seepage	1.00
		Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Too Sandy	1.00
Shellabarger-----	30	Too Sandy	1.00			Seepage	1.00
		Not limited		Not limited		Not limited	
		Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
1324: Carway-----	50	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Hard to compact	1.00
		Very limited		Very limited		Too clayey	0.50
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
Carbika-----	30	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
		Not limited		Not limited		Not limited	
		Not limited		Not limited		Not limited	
1359: Clark-----	70	Not limited		Not limited		Not limited	
		Not limited		Not limited		Not limited	
		Very limited		Not limited		Very limited	
		Sodium content	1.00			Sodium content	1.00
1553: Darlow-----	20	Sodium content	1.00	Not limited		Very limited	
		Seepage	1.00			Sodium content	1.00
		Very limited				Seepage	0.16
		Not limited				Not limited	
1555: Dillhut-----	35	Seepage	1.00	Seepage	1.00	Not limited	
		Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too Sandy	1.00
1556: Dillhut-----	30	Too Sandy	1.00			Seepage	1.00
		Very limited		Very limited		Not limited	
		Seepage	1.00	Seepage	1.00	Somewhat limited	
		Very limited		Very limited		Seepage	0.50
1725: Farnum-----	40	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.09
		Seepage	1.00	Seepage	1.00		
		Not limited		Not limited		Not limited	
		Somewhat limited		Not limited		Very limited	
1726: Funmar-----	40	Too clayey	0.50			Hard to compact	1.00
		Not limited		Not limited		Too clayey	0.50
		Somewhat limited		Not limited		Not limited	
		Too clayey	0.50	Not limited		Very limited	
						Hard to compact	1.00
						Too clayey	0.50

SANITARY FACILITIES--Continued  
Stafford 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
1985: Hayes-----	60	Very limited Too clayey	1.00	Very limited Seepage	1.00	Very limited Hard to compact	1.00
1986: Hayes-----	55	Very limited Too clayey	1.00	Very limited Seepage	1.00	Very limited Hard to compact	1.00
Solvay-----	20	Very limited Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00 1.00	Somewhat limited Seepage Depth to saturated zone	0.50 0.09
1987: Hayes-----	40	Very limited Too clayey	1.00	Very limited Seepage	1.00	Very limited Hard to compact	1.00
Turon-----	35	Very limited Too Sandy	1.00	Very limited Seepage	1.00	Very limited Seepage Too Sandy	1.00 0.50
1988: Hayes-----	70	Very limited Too clayey	1.00	Very limited Seepage	1.00	Very limited Hard to compact	1.00
2381: Kanza-----	50	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 1.00
Ninnescah-----	50	Too Sandy Very limited Flooding Depth to saturated zone Too Sandy Seepage	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 Seepage Depth to saturated zone Too Sandy	1.00 0.86 0.50
2556: Langdon-----	50	Very limited Seepage Too Sandy Slope	1.00 1.00 0.00	Very limited Seepage Slope	1.00 0.00	Very limited Too Sandy Seepage Slope	1.00 1.00 0.00
2958: Ninnescah-----	85	Very limited Flooding Depth to saturated zone Too Sandy 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 Seepage Depth to saturated zone Too Sandy	1.00 0.86 0.50
3053: Ost-----	85	Not limited		Not limited		Not limited	
3180: Pratt-----	85	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
3181: Pratt-----	45	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
Turon-----	30	Very limited Too Sandy	1.00	Very limited Seepage	1.00	Very limited Seepage Too Sandy	1.00 0.50
3511: Saltcreek-----	70	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
Naron, sandy substratum-----	30	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50
3512: Saltcreek-----	50	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
Naron-----	50	Very limited Seepage	1.00	Not limited		Not limited	
3520: Saxman-----	85	Very limited Depth to saturated zone Seepage Too Sandy Flooding	1.00 1.00 1.00 0.40	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.47
3540: Solvay-----	90	Very limited		Very limited		Somewhat limited	

SANITARY FACILITIES--Continued  
Stafford 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
3639: Taver-----	90	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.09
3640: Tivin-----	95	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
		Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
3641: Tivin-----	45	Too Sandy	1.00	Slope	1.00	Seepage	1.00
		Slope	1.00			Slope	1.00
Dillhut-----	40	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00	Slope	0.16	Seepage	1.00
3644: Turon-----	65	Slope	0.16			Slope	0.16
		Very limited Seepage	1.00	Very limited Seepage	1.00	Not limited	
Carway-----	20	Very limited Too Sandy	1.00	Very limited Seepage	1.00	Very limited Seepage	1.00
		Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Too Sandy	0.50
3926: Water-----	100	Ponding	1.00	Depth to saturated zone	1.00	Very limited Ponding	1.00
		Too clayey	0.50			Depth to saturated zone	1.00
An: Albion-----	100					Hard to compact Too clayey	1.00 0.50
		Not rated		Not rated		Not rated	
At: Attica-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00			Seepage	1.00
Ba: Blanket-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50
		Too clayey	1.00	Not limited		Very limited Too clayey	1.00
BIG: Big Salt Marsh-----	100					Hard to compact	1.00
		Not rated		Not rated		Not rated	
Ca: Carwile-----	100	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Cw: Carwile-----	100	Too clayey	1.00			Too clayey	1.00
		Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Hard to compact	1.00
Cx: Clark-----	100	Ponding	1.00	Depth to saturated zone	1.00	Very limited Ponding	1.00
		Too clayey	0.50			Depth to saturated zone	1.00
Dp: Dillwyn-----	65	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Hard to compact Too clayey	1.00 0.50
		Seepage	1.00	Seepage	1.00	Not limited	
Plevna-----	35	Too Sandy	1.00			Very limited Too Sandy	1.00
		Very limited Flooding	1.00	Very limited Flooding	1.00	Seepage	1.00
Dt: Dillwyn-----	65	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Seepage	0.50
Dillwyn-----	65	Very limited		Very limited		Very limited	

SANITARY FACILITIES--Continued  
Stafford 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
Tivoli-----	35	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too Sandy	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too Sandy	1.00			Depth to saturated zone	0.86
		Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
Fa: Farnum-----	100	Too Sandy	1.00	Slope	0.16	Seepage	1.00
Fr: Farnum-----	100	Slope	0.16			Slope	0.16
GRP: Gravel Pits-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
INT: Aquolls-----	100	Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Kg: Kingman-----	100	Not rated		Not rated		Not rated	
		Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Seepage	1.00				
M-W: Miscellaneous Water-	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
		Not rated		Not rated		Not rated	
Na: Naron-----	100	Not rated		Not rated		Not rated	
NAA: Naron-----	100	Very limited Seepage	1.00	Not limited		Not limited	
NBB: Naron-----	100	Very limited Seepage	1.00	Not limited		Not limited	
Nu: Natrustolls-----	100	Very limited Seepage	1.00	Not limited		Not limited	
Pa: Plevna-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Hard to compact	1.00
		Seepage	1.00			Depth to saturated zone	0.09
		Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
Pc: Plevna-----	100	Seepage	1.00	Seepage	1.00		
Ph: Pratt-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Seepage	1.00	Seepage	1.00		
		Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Seepage	1.00
Po: Pratt-----	100	Too Sandy	1.00	Slope	0.00	Too Sandy	0.50
Pr: Pratt-----	60	Slope	0.00			Slope	0.00
Carwile-----	40	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Seepage	1.00
		Too Sandy	1.00			Too Sandy	0.50
		Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Hard to compact	1.00

SANITARY FACILITIES--Continued  
Stafford 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
Pt: Pratt-----	65	Very limited Seepage Too Sandy Slope	1.00 1.00 0.00	Very limited Seepage Slope	1.00 0.00	Too clayey Very limited Seepage Too Sandy Slope	0.50 1.00 0.50 0.00
Tivoli-----	35	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
Ta: Tabler-----	100	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
TAA: Tabler-----	100	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
Tv: 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
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Waldeck-----	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 0.09
Za: Zenda-----	80	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.09
Natrustolls-----	20	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Hard to compact Depth to saturated zone	1.00 0.09
ZSS: Drummond-----	50	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Hard to compact Depth to saturated zone	1.00 0.09
Zenda-----	50	Very limited Flooding Depth to saturated zone Too clayey	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



# AGRICULTURAL WASTE MANAGEMENT Stafford 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  
Stafford 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  
Stafford 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
009DT: Dillwyn-----	60	Very limited Filtering capacity Depth to saturated zone Leaching limitation Droughty	1.00 1.00 0.45 0.21	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 1.00 0.21	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 1.00 0.21
Tivoli-----	40	Very limited Filtering capacity  Droughty  Leaching limitation Slope	1.00 1.00 1.00 0.45 0.16	Very limited Filtering capacity  Droughty  Slope	1.00 1.00 1.00 0.16	Very limited Too steep for surface application Filtering capacity Droughty  Too steep for sprinkler application	1.00 1.00 1.00 1.00 0.39
009TV: Tivoli-----	100	Very limited Slope  Filtering capacity  Droughty  Leaching limitation	1.00 1.00 1.00 0.45	Very limited Slope  Filtering capacity  Droughty	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler application Filtering capacity Droughty	1.00 1.00 1.00 1.00
047CS: Carwile-----	90	Very limited Ponding Depth to saturated zone Restricted permeability Runoff limitation Too acid	1.00 1.00 1.00 0.40 0.02	Very limited Ponding Depth to saturated zone Restricted permeability Too acid	1.00 1.00 1.00 0.07	Very limited Ponding Depth to saturated zone Restricted permeability Too acid	1.00 1.00 1.00 0.07
Drummond-----	10	Very limited Restricted permeability Droughty Runoff limitation  Salinity Filtering capacity	1.00 0.89 0.40 0.01 0.00	Very limited Restricted permeability Droughty Filtering capacity	1.00 0.89 0.00	Very limited Restricted permeability Droughty Filtering capacity	1.00 0.89 0.00
151KP: Kanza-----	50	Very limited Flooding Depth to saturated zone Filtering capacity Droughty Runoff limitation	1.00 1.00 1.00 0.82 0.40	Very limited Flooding Depth to saturated zone Filtering capacity Droughty Too acid	1.00 1.00 1.00 0.82 0.14	Very limited Flooding Depth to saturated zone Filtering capacity Droughty Too acid	1.00 1.00 1.00 0.82 0.14
Plevna-----	50	Very limited Flooding Depth to saturated zone Runoff limitation  Filtering capacity	1.00 1.00 0.40 0.00	Very limited Flooding Depth to saturated zone Filtering capacity	1.00 1.00 0.00	Very limited Flooding Depth to saturated zone Filtering capacity	1.00 1.00 0.00
159DP: Dillwyn-----	60	Very limited Filtering capacity Depth to saturated zone Leaching limitation Droughty	1.00 1.00 0.45 0.20	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 1.00 0.20	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 1.00 0.20
Plevna-----	40	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00

AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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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
159DT: Dillwyn-----	60	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff limitation	0.40	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
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Leaching limitation	0.45	Droughty	0.20	Droughty	0.20
Tivoli-----	40	Droughty	0.20				
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Too steep for surface application	1.00
		Droughty	1.00	Droughty	1.00	Filtering capacity	1.00
		Slope	0.84	Slope	0.84	Droughty	1.00
159DU: Drummond-----	100	Leaching limitation	0.45			Too steep for sprinkler application	0.89
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Runoff limitation	0.40	Droughty	0.25	Droughty	0.25
		Droughty	0.25				
159PE: Plevna-----	100	Salinity	0.01				
		Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff limitation	0.40	Filtering capacity	0.00	Filtering capacity	0.00
990: Abbyville-----	95	Filtering capacity	0.00				
		Very limited Sodium content	1.00	Very limited Sodium content	1.00	Very limited Sodium content	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
991: Abbyville, rarely flooded-----	45	Salinity	0.01				
		Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
Kisiwa, occasionally flooded-----	40	Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Salinity	0.01	Flooding	0.40	Filtering capacity	0.00
		Filtering capacity	0.00	Filtering capacity	0.00		
		Very limited		Very limited		Very limited	
1005: Albion-----	75	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Filtering capacity	1.00	Flooding	1.00	Filtering capacity	1.00
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Too acid	0.03	Too acid	0.14	Too acid	0.14

AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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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
1011: Albion-----	70					Too steep for surface application	0.00
		Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Too acid	0.03	Too acid	0.14	Too acid	0.14
Shellabarger-----	30					Too steep for surface application	0.00
		Somewhat limited Too acid	0.11	Somewhat limited Too acid	0.42	Somewhat limited Too acid	0.42
1324: Carway-----	50	Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Carbika-----	30	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff limitation	0.40	Too acid	0.14	Too acid	0.14
		Too acid	0.03	Filtering capacity	0.00	Filtering capacity	0.00
1359: Clark-----	70	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ost-----	30	Runoff limitation	0.40	Too acid	0.14	Too acid	0.14
		Too acid	0.03				
1553: Darlow-----	70	Not limited		Not limited		Somewhat limited Too steep for surface application	0.08
		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
Elmer-----	20	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Too acid	0.62	Too acid	1.00	Too acid	1.00
1555: Dillhut-----	35	Salinity	0.01				
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Depth to dense layer	1.00	Too acid	1.00	Too acid	1.00
Plev-----	35	Too acid	0.68	Sodium content	0.32	Sodium content	0.32
		Sodium content	0.32	Filtering capacity	0.00	Filtering capacity	0.00
		Filtering capacity	0.00				
1556: Dillhut-----	30	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Too acid	0.00	Too acid	0.01	Too acid	0.01

AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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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
Solvay-----	30	Very limited Depth to dense layer Depth to saturated zone Runoff limitation Too acid Filtering capacity	1.00 0.43 0.40 0.01 0.00	Somewhat limited Depth to saturated zone Too acid Filtering capacity	0.43 0.03 0.00	Somewhat limited Depth to saturated zone Too acid Filtering capacity	0.43 0.03 0.00
1725: Farnum-----	40	Somewhat limited Too acid	0.00	Somewhat limited Too acid	0.01	Somewhat limited Too acid	0.01
Funmar-----	40	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
1726: Farnum-----	40	Somewhat limited Too acid	0.00	Somewhat limited Too acid	0.01	Somewhat limited Too acid	0.01
Funmar-----	40	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
1985: Hayes-----	60	Very limited Restricted permeability Too acid Filtering capacity	1.00 0.02 0.00	Very limited Restricted permeability Too acid Filtering capacity	1.00 0.07 0.00	Very limited Restricted permeability Too acid Filtering capacity Too steep for surface application	1.00 0.07 0.00 0.00
1986: Hayes-----	55	Very limited Filtering capacity Restricted permeability Too acid	1.00 1.00 0.02	Very limited Filtering capacity Restricted permeability Too acid	1.00 1.00 0.07	Very limited Filtering capacity Restricted permeability Too acid Too steep for surface application	1.00 1.00 0.07 0.00
Solvay-----	20	Very limited Depth to dense layer Depth to saturated zone Runoff limitation Too acid Filtering capacity	1.00 0.43 0.40 0.01 0.00	Somewhat limited Depth to saturated zone Too acid Filtering capacity	0.43 0.03 0.00	Somewhat limited Depth to saturated zone Too acid Filtering capacity	0.43 0.03 0.00
1987: Hayes-----	40	Very limited Filtering capacity Restricted permeability Too acid	1.00 1.00 0.02	Very limited Filtering capacity Restricted permeability Too acid	1.00 1.00 0.07	Very limited Filtering capacity Restricted permeability Too acid Too steep for surface application	1.00 1.00 0.07 0.00
Turon-----	35	Very limited Filtering capacity Restricted permeability Leaching limitation Too acid	1.00 0.89 0.45 0.05	Very limited Filtering capacity Restricted permeability Too acid	1.00 0.78 0.21	Very limited Filtering capacity Restricted permeability Too acid Too steep for surface application	1.00 0.78 0.21 0.00
1988: Hayes-----	70	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00

AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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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
2381: Kanza-----	50	Too acid	0.02	Too acid	0.07	Too steep for surface application	0.66
		Filtering capacity	0.00	Filtering capacity	0.00	Too acid	0.07
						Filtering capacity	0.00
						Too steep for sprinkler application	0.00
		Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Runoff limitation	0.40	Too acid	0.14	Too acid	0.14
		Too acid	0.03				
Ninnescah-----	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Depth to saturated zone	1.00	Flooding	0.60
		Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
2556: Langdon-----	50	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	0.62	Too acid	0.67	Too steep for surface application	1.00
		Leaching limitation	0.45	Droughty	0.62	Too acid	0.67
		Too acid	0.18	Slope	0.00	Droughty	0.62
2958: Ninnescah-----	85	Slope	0.00			Too steep for sprinkler application	0.10
		Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Depth to saturated zone	1.00	Flooding	0.60
		Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
3053: Ost-----	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
3180: Pratt-----	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Low adsorption	1.00	Too acid	0.42	Low adsorption	1.00
		Leaching limitation	0.45			Too steep for surface application	0.91
3181: Pratt-----	45	Too acid	0.11			Too acid	0.42
						Too steep for sprinkler application	0.02
		Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
Turon-----	30	Low adsorption	1.00	Too acid	0.42	Low adsorption	1.00
		Leaching limitation	0.45			Too acid	0.42
		Too acid	0.11			Too steep for surface application	0.00
		Very limited		Very limited		Very limited	
Turon-----	30	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Restricted permeability	0.78

AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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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
3511: Saltcreek-----	70	Leaching limitation	0.45	Too acid	0.21	Too acid	0.21
		Too acid	0.05			Too steep for surface application	0.00
		Very limited Restricted permeability	1.00			Very limited Restricted permeability	1.00
		Too acid	0.73			Too acid	1.00
Naron, sandy substratum-----	30	Filtering capacity	0.00	Somewhat limited	0.00	Filtering capacity	0.00
		Somewhat limited	0.00			Somewhat limited	0.00
		Filtering capacity	0.00			Filtering capacity	0.00
		Very limited Restricted permeability	1.00			Very limited Restricted permeability	1.00
3512: Saltcreek-----	50	Too acid	0.73	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.00			Filtering capacity	0.00
		Somewhat limited	0.00			Somewhat limited	0.00
		Filtering capacity	0.00			Filtering capacity	0.00
Naron-----	50	Very limited Restricted permeability	1.00	Somewhat limited	0.00	Very limited Restricted permeability	1.00
		Too acid	0.73			Too acid	1.00
		Filtering capacity	0.00			Filtering capacity	0.00
		Somewhat limited	0.00			Somewhat limited	0.00
3520: Saxman-----	85	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to saturated zone	0.86			Too acid	1.00
		Too acid	0.62			Depth to saturated zone	0.86
		Leaching limitation	0.45			Droughty	0.11
3540: Solvay-----	90	Droughty	0.11	Somewhat limited	0.43	Somewhat limited	0.43
		Very limited	1.00			Depth to saturated zone	0.03
		Depth to dense layer	0.43			Too acid	0.03
		Depth to saturated zone	0.40			Filtering capacity	0.00
3639: Taver-----	90	Runoff limitation	0.01	Filtering capacity	0.00	Filtering capacity	0.00
		Too acid	0.00				
		Very limited	1.00			Very limited	1.00
		Restricted permeability	0.40			Restricted permeability	1.00
3640: Tivin-----	95	Runoff limitation	0.40	Very limited	1.00	Very limited	1.00
		Filtering capacity	1.00			Filtering capacity	1.00
		Slope	1.00			Too steep for surface application	1.00
		Droughty	0.64			Too steep for sprinkler application	1.00
3641: Tivin-----	45	Leaching limitation	0.45	Too acid	0.01	Droughty	0.64
		Too acid	0.00			Too acid	0.01
		Very limited	1.00			Very limited	1.00
		Filtering capacity	0.64			Filtering capacity	1.00
3641: Tivin-----	45	Droughty	0.64	Droughty	0.64	Too steep for surface application	1.00
		Leaching limitation	0.45			Droughty	0.64
		Too acid	0.00			Too acid	0.01
		Very limited	1.00			Very limited	1.00
3641: Tivin-----	45	Filtering capacity	0.64	Droughty	0.64	Filtering capacity	1.00
		Droughty	0.64			Too steep for surface application	1.00
		Leaching limitation	0.45			Droughty	0.64
		Too acid	0.00			Too acid	0.01
3641: Tivin-----	45	Very limited	1.00	Slope	0.16	Very limited	1.00
		Filtering capacity	0.64			Filtering capacity	1.00
		Droughty	0.64			Too steep for surface application	1.00
		Leaching limitation	0.45			Droughty	0.64
3641: Tivin-----	45	Too acid	0.00	Too acid	0.01	Too steep for sprinkler application	0.39
		Very limited	1.00			Very limited	1.00
		Filtering capacity	0.64			Filtering capacity	1.00
		Droughty	0.64			Too steep for sprinkler application	0.39



AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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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
Dillhut-----	40	Too acid Very limited Filtering capacity Too acid	0.00 1.00 0.00	Very limited Filtering capacity Too acid	1.00 0.01	Too acid Very limited Filtering capacity Too acid Too steep for surface application	0.01 1.00 0.01 0.00
3644: Turon-----	65	Very limited Filtering capacity Restricted permeability Leaching limitation Too acid	1.00 0.89 0.45 0.05	Very limited Filtering capacity Restricted permeability Too acid	1.00 0.78 0.21	Very limited Filtering capacity Restricted permeability Too acid Too steep for surface application	1.00 0.78 0.21 0.08
Carway-----	20	Very limited Filtering capacity Restricted permeability Ponding Depth to saturated zone Runoff limitation	1.00 1.00 1.00 1.00 0.40	Very limited Filtering capacity Restricted permeability Ponding Depth to saturated zone Too acid	1.00 1.00 1.00 0.14	Very limited Filtering capacity Restricted permeability Ponding Depth to saturated zone Too acid	1.00 1.00 1.00 0.14
3926: Water-----	100	Not rated		Not rated		Not rated	
An: Albion-----	100	Very limited Filtering capacity Too acid	1.00 0.03	Very limited Filtering capacity Too acid	1.00 0.14	Very limited Filtering capacity Too acid Too steep for surface application	1.00 0.14 0.00
At: Attica-----	100	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
Ba: Blanket-----	100	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
BIG: Big Salt Marsh-----	100	Not rated		Not rated		Not rated	
Ca: Carwile-----	100	Very limited Ponding Depth to saturated zone Restricted permeability Runoff limitation Too acid	1.00 1.00 1.00 0.40 0.02	Very limited Ponding Depth to saturated zone Restricted permeability Too acid	1.00 1.00 1.00 0.07	Very limited Ponding Depth to saturated zone Restricted permeability Too acid	1.00 1.00 1.00 0.07
Cw: Carwile-----	100	Very limited Ponding Depth to saturated zone Restricted permeability Runoff limitation Too acid	1.00 1.00 1.00 0.40 0.02	Very limited Ponding Depth to saturated zone Restricted permeability Too acid	1.00 1.00 1.00 0.07	Very limited Ponding Depth to saturated zone Restricted permeability Too acid	1.00 1.00 1.00 0.07
Cx: Clark-----	100	Not limited		Not limited		Not limited	

AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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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
Dp: Dillwyn-----	65	Very limited Filtering capacity Depth to saturated zone Leaching limitation Droughty	1.00 1.00 0.45 0.21	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 1.00 0.21	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 1.00 0.21
Plevna-----	35	Very limited Flooding Depth to saturated zone Runoff limitation Filtering capacity	1.00 1.00 0.40 0.00	Very limited Flooding Depth to saturated zone Filtering capacity	1.00 1.00 0.00	Very limited Flooding Depth to saturated zone Filtering capacity	1.00 1.00 0.00
Dt: Dillwyn-----	65	Very limited Filtering capacity Depth to saturated zone Leaching limitation Droughty	1.00 1.00 0.45 0.21	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 1.00 0.21	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 1.00 0.21
Tivoli-----	35	Very limited Filtering capacity Droughty Leaching limitation Slope	1.00 0.96 0.45 0.16	Very limited Filtering capacity Droughty Slope	1.00 0.96 0.16	Very limited Too steep for surface application Filtering capacity Droughty Too steep for sprinkler application	1.00 1.00 0.96 0.39
Fa: Farnum-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00
Fr: Farnum-----	100	Not limited		Not limited		Not limited	
GRP: Gravel Pits-----	100	Not rated		Not rated		Not rated	
INT: Aquolls-----	100	Very limited Depth to saturated zone Low adsorption Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Low adsorption Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Low adsorption Ponding	1.00 1.00 1.00
Kg: Kingman-----	100	Very limited Depth to saturated zone Flooding Runoff limitation Restricted permeability	1.00 0.60 0.40 0.30	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 0.22	Very limited Depth to saturated zone Flooding Restricted permeability	1.00 0.60 0.22
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
Na: Naron-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00
NAA: Naron-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00

AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NBB: Naron-----	100	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00
Nu: Natrustolls-----	100	Very limited Restricted permeability Droughty	1.00	Very limited Droughty	1.00	Very limited Droughty	1.00
		Salinity	0.50	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.43	Salinity	1.00	Salinity	1.00
		Runoff limitation	0.40	Depth to saturated zone	0.43	Depth to saturated zone	0.43
Pa: Plevna-----	100	Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
		Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff limitation	0.40	Filtering capacity	0.00	Filtering capacity	0.00
Pc: Plevna-----	100	Filtering capacity	0.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Very limited Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Filtering capacity	0.00	Filtering capacity	0.00
		Runoff limitation	0.40	Very limited Flooding	1.00	Very limited Flooding	1.00
		Filtering capacity	0.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ph: Pratt-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45	Slope	0.00	Too steep for surface application	1.00
		Slope	0.00			Too steep for sprinkler application	0.10
Po: Pratt-----	100	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	0.00
Pr: Pratt-----	60	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	0.31
Carwile-----	40	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Too acid	0.07	Too acid	0.07
		Too acid	0.02				
Pt: Pratt-----	65	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45	Slope	0.00	Too steep for surface application	1.00
		Slope	0.00			Too steep for sprinkler application	0.10
Tivoli-----	35	Very limited		Very limited		Very limited	

AGRICULTURAL WASTE MANAGEMENT--Continued  
Stafford County, Kansas

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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
Ta: Tabler-----	100	Filtering capacity	1.00	Filtering capacity	1.00	Too steep for surface application	1.00
		Droughty	0.98	Droughty	0.98	Filtering capacity	1.00
		Leaching limitation	0.45	Slope	0.16	Droughty	0.98
		Slope	0.16			Too steep for sprinkler application	0.39
TAA: Tabler-----	100	Very limited Restricted permeability Runoff limitation	1.00 0.40	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Tv: Tivoli-----	100	Very limited Restricted permeability Runoff limitation	1.00 0.40	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
W: Water-----	100	Filtering capacity	1.00	Filtering capacity	1.00	Very limited Too steep for surface application	1.00
		Droughty	1.00	Droughty	1.00	Filtering capacity	1.00
		Slope	0.84	Slope	0.84	Droughty	1.00
		Leaching limitation	0.45			Too steep for sprinkler application	0.89
Wa: Waldeck-----	100	Not rated		Not rated		Not rated	
Za: Zenda-----	80	Very limited Filtering capacity Flooding	1.00 0.60	Very limited Flooding	1.00	Very limited Filtering capacity Flooding	1.00
		Depth to saturated zone	0.43	Filtering capacity	1.00	Depth to saturated zone	0.60
		Somewhat limited Flooding	0.60	Depth to saturated zone	0.43	Somewhat limited Flooding	0.60
		Depth to saturated zone	0.43	Very limited Droughty	1.00	Depth to saturated zone	0.43
Natrustolls-----	20	Very limited Restricted permeability Droughty	1.00 1.00	Very limited Droughty	1.00	Very limited Droughty	1.00
ZSS: Drummond-----	50	Salinity	0.50	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.43	Salinity	1.00	Salinity	1.00
		Runoff limitation	0.40	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
Zenda-----	50	Very limited Restricted permeability Droughty	1.00 1.00	Very limited Restricted permeability Droughty	1.00 1.00	Very limited Restricted permeability Droughty	1.00 1.00
		Salinity	0.50	Salinity	1.00	Salinity	1.00
		Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Runoff limitation	0.40				
		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

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

Soils Data Table: SOIL\_KS Sort Order: MUSYM

Stafford County, Kansas: KS185

							SPISP II Ratings		
							Leaching	Solution	Adsorbed
MUSYM/SEQ#	COMPONENT/TEXTURE/MU%	HYD	KFACT	SURFACE DEPTH	% OM	(SLP)	Runoff (SSRP)	Runoff (SARP)	
009DT 1	DILLWYN LFS 60%	A	0.17	8"	1.0%	H (w)	L	L	
009DT 2	TIVOLI FS 40%	A	0.17	6"	0.5%	H	L	L	
009TV 1	TIVOLI FS 100%	A	0.17	6"	0.5%	H	L	I (s)	
047CS 1	CARWILE FSL 90%	D	0.24	11"	2.0%	H (w)	H	H	
047CS 2	DRUMMOND FSL 10%	D	0.32	8"	0.8%	H (w)	H	H	
1005 1	ALBION SL 75%	B	0.20	9"	1.5%	H	I	I	
1011 1	ALBION SL 70%	B	0.20	9"	1.5%	H	I	I	
1011 2	SHELLABARGER SL 30%	B	0.20	7"	1.5%	H	I	I	
1324 1	CARWAY FSL 50%	D	0.20	7"	0.8%	V	H	H	
1324 2	CARBIKA SIL 30%	D	0.24	11"	1.5%	V	H	H	
1359 1	CLARK L 70%	B	0.28	11"	1.5%	I	I	I	
1359 2	OST L 30%	B	0.28	8"	2.0%	I	I	I	
151FM 1	FARNUM L 100%	B	0.28	14"	2.0%	I	I	I	
151FN 1	FARNUM L 100%	B	0.28	12"	2.0%	I	I	I	
151KP 1	KANZA LFS 50%	D	0.17	11"	2.0%	H (w)	H	H	
151KP 2	PLEVNA FSL 50%	D	0.20	10"	2.5%	H (w)	H	H	
1553 1	DARLOW L 70%	C	0.43	5"	2.0%	L	H	H	
1553 2	ELMER FSL 20%	C	0.32	6"	1.5%	L	H	H	
1555 1	DILLHUT FS 35%	B	0.15	4"	0.5%	H	I	I	
1555 2	PLEV LFS 35%	B	0.17	4"	0.5%	H (w)	I	I	
1556 1	DILLHUT FS 30%	B	0.15	4"	0.5%	H	I	I	
1556 2	SOLVAY FSL 30%	D	0.20	5"	1.3%	H (w)	H	H	
159DP 1	DILLWYN LFS 60%	A	0.17	9"	1.0%	H (w)	L	L	
159DP 2	PLEVNA LFS 40%	D	0.17	10"	2.5%	H (w)	H	H	
159DT 1	DILLWYN LFS 60%	A	0.17	9"	1.0%	H (w)	L	L	
159DT 2	TIVOLI FS 40%	A	0.17	7"	0.5%	H	L	I (s)	
159DU 1	DRUMMOND SICL 100%	D	0.43	8"	0.8%	H (w)	H	H	
159PE 1	PLEVNA FSL 100%	D	0.20	10"	2.5%	H (w)	H	H	

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

Soils Data Table: SOIL\_KS Sort Order: MUSYM

Stafford County, Kansas: KS185

1725	1	FARNUM L 40%	B	0.28	5"	2.0% I	I	I
1725	2	FUNMAR L 40%	C	0.28	6"	2.0% L	H	H
1985	1	HAYES FSL 60%	B	0.20	8"	0.8% H	I	I
1986	1	HAYES LFS 55%	B	0.17	8"	0.8% H	I	I
1986	2	SOLVAY LFS 20%	D	0.17	5"	0.8% H (w)	H	H
1987	1	HAYES LFS 40%	B	0.17	8"	0.8% H	I	I
1987	2	TURON FS 35%	A	0.15	8"	0.5% H	L	L
2381	1	KANZA SL 50%	D	0.20	4"	2.0% H (w)	H	H
2381	2	NINNESCAH SL 50%	B	0.20	6"	2.5% H (w)	I	I
2556	1	LANGDON FS 50%	A	0.15	8"	0.5% H	L	L
2958	1	NINNESCAH FSL 85%	B	0.20	6"	2.5% H (w)	I	I
3053	1	OST L 85%	B	0.28	8"	2.0% I	I	I
3180	1	PRATT FS 85%	A	0.15	8"	0.8% H	L	L
3181	1	PRATT FS 45%	A	0.15	8"	0.8% H	L	L
3181	2	TURON FS 30%	A	0.15	8"	0.5% H	L	L
3511	1	SALTCREEK FSL 70%	C	0.20	5"	1.5% I	H	I
3511	2	NARON FSL 30%	B	0.20	7"	2.0% H	I	I
3512	1	NARON FSL 50%	B	0.20	8"	2.0% I	I	I
3512	2	SALTCREEK FSL 50%	C	0.20	5"	1.5% I	H	I
3520	1	SAXMAN LS 85%	A	0.20	4"	0.7% H (w)	L	L
3540	1	SOLVAY LFS 90%	D	0.17	5"	0.8% H (w)	H	H
3639	1	TAVER L 90%	D	0.28	7"	2.0% V	H	H
3640	1	TIVIN FS 95%	A	0.15	7"	0.5% H	L	I (s)
3641	1	TIVIN FS 45%	A	0.15	7"	0.5% H	L	L
3641	2	DILLHUT FS 40%	B	0.15	4"	0.5% H	I	I
3644	1	TURON FS 65%	A	0.15	8"	0.5% H	L	L
3644	2	CARWAY LFS 20%	D	0.17	7"	0.8% V	H	H
4110	1	ZELLMONT SL 70%	B	0.20	8"	1.5% H	I	I
4110	2	POXMASH SL 30%	B	0.20	5"	1.4% H	I	I
990	1	ABBYVILLE L 95%	C	0.43	8"	2.0% H (w)	H	H

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

Soils Data Table: SOIL\_KS Sort Order: MUSYM

Stafford County, Kansas: KS185

991 1	ABBYVILLE FSL 45%	C	0.32	8"	2.0% H (w)	H	H
991 2	KISIWA L 40%	D	0.43	4"	2.5% H (w)	H	H
An 1	ALBION SL 100%	B	0.20	10"	1.5% H	I	I
At 1	ATTICA FSL 100%	B	0.24	10"	0.8% H	I	I
Ba 1	BLANKET SIL 100%	C	0.37	10"	2.0% L	H	H
BIG 1	BIG SALT MARSH 100%		0.00	0"	0.0% ?	?	?
Ca 1	CARWILE FSL 100%	D	0.24	10"	2.0% H (w)	H	H
Cw 1	CARWILE FSL 100%	D	0.24	7"	2.0% H (w)	H	H
Cx 1	CLARK L 100%	B	0.28	8"	1.5% I	I	I
Dp 1	DILLWYN LFS 65%	A	0.17	8"	1.0% H (w)	L	L
Dp 2	PLEVNA FSL 35%	D	0.20	12"	2.5% H (w)	H	H
Dt 1	DILLWYN LFS 65%	A	0.17	8"	1.0% H (w)	L	L
Dt 2	TIVOLI LFS 35%	A	0.17	10"	0.5% H	L	L
Fa 1	FARNUM FSL 100%	B	0.20	14"	1.5% I	I	I
Fr 1	FARNUM L 100%	B	0.28	9"	2.0% I	I	I
GRP 1	GRAVEL PITS 100%		0.00	0"	0.0% ?	?	?
INT 1	AQUOLLS VAR 100%	C	0.00	72"	0.0% ?	H	?
Kg 1	KINGMAN SICL 100%	D	0.32	10"	3.0% H (w)	H	H
M-W 1	MISCELLANEOUS WATER 100%		0.00	0"	0.0% ?	?	?
Na 1	NARON FSL 100%	B	0.20	7"	2.0% H	I	I
NAA 1	NARON FSL 100%	B	0.20	14"	2.0% I	I	I
NBB 1	NARON FSL 100%	B	0.20	14"	2.0% I	I	I
Nu 1	NATRUSTOLLS FSL 100%	D	0.32	10"	0.8% H (w)	H	H
Pa 1	PLEVNA FSL 100%	D	0.20	12"	2.5% H (w)	H	H
Pc 1	PLEVNA FSL 100%	D	0.20	12"	2.5% H (w)	H	H
Ph 1	PRATT LFS 100%	A	0.17	8"	0.8% H	L	L
Po 1	PRATT LFS 100%	A	0.17	8"	0.8% H	L	L
Pr 1	PRATT LFS 60%	A	0.17	8"	0.8% H	L	L
Pr 2	CARWILE FSL 40%	D	0.24	7"	2.0% H (w)	H	H
Pt 1	PRATT LFS 65%	A	0.17	8"	0.8% H	L	L

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

Soils Data Table: SOIL\_KS Sort Order: MUSYM

Stafford County, Kansas: KS185

Pt 2	TIVOLI LFS 35%	A	0.17	6"	0.5% H	L	L
Ta 1	TABLER L 100%	D	0.49	7"	2.0% V	H	H
TAA 1	TABLER CL 100%	D	0.43	10"	2.0% V	H	H
Tv 1	TIVOLI FS 100%	A	0.17	6"	0.5% H	L	I (s)
W 1	WATER 100%		0.00	0"	0.0% ?	?	?
Wa 1	WALDECK FSL 100%	C	0.20	12"	1.5% H (w)	H	I
Za 1	ZENDA L 80%	C	0.28	20"	2.0% H (w)	H	H
Za 2	NATRUSTOLLS FSL 20%	D	0.32	10"	0.8% H (w)	H	H
ZSS 1	DRUMMOND CL 50%	D	0.49	8"	0.8% H (w)	H	H
ZSS 2	ZENDA CL 50%	C	0.28	14"	2.0% H (w)	H	H

(.\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  
Stafford County, Kansas

PAGE 2 of 8

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
009DT: DILLWYN-TIVOLI COMPLEX, 0 TO 15 PERCENT SLOPES	DILLWYN	No	interdune, dune, paleoterrace	---	---	---	---
	TIVOLI	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A,3,2B3	YES	NO	YES
	Unnamed wet soils	Yes	depression	2A,2B2	YES	NO	NO
009TV: TIVOLI FINE SAND, 15 TO 30 PERCENT SLOPES	TIVOLI	No	dune, paleoterrace	---	---	---	---
	Unnamed Hydric Soil	Yes	depression	2A,3,2B3,2B 2	YES	NO	YES
047CS: CARWILE-DRUMMOND COMPLEX, 0 TO 1 PERCENT SLOPES	CARWILE	Yes	depression, paleoterrace	2A,3	YES	NO	YES
	DRUMMOND Unnamed wet soils	No Yes	terrace depression	--- 2A,3,2B3	--- YES	--- NO	--- YES
151KP: KANZA-PLEVNA COMPLEX, FREQUENTLY FLOODED	KANZA	Yes	flood plain	2B3	YES	NO	NO
	PLEVNA	Yes	flood plain	2B3,4	YES	YES	NO
159DP: DILLWYN-PLEVNA LOAMY FINE SANDS, 0 TO 1 PERCENT SLOPES	DILLWYN	No	interdune, dune, paleoterrace	---	---	---	---
	PLEVNA	Yes	flood plain	2B3,4	YES	YES	NO
159DT: DILLWYN-TIVOLI COMPLEX, 0 TO 20 PERCENT SLOPES	DILLWYN	No	interdune, dune, paleoterrace	---	---	---	---
	TIVOLI	No	dune, paleoterrace	---	---	---	---
	PLEVNA	Yes	flood plain	3,2B3	YES	NO	YES
	Unnamed wet soils	Yes	depression	3,2A,2B3,2B 2	YES	NO	YES
159DU: DRUMMOND COMPLEX, 0 TO 1 PERCENT SLOPES	DRUMMOND	No	terrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A,3,2B3	YES	NO	YES
159PE: PLEVNA FINE SANDY LOAM, FREQUENTLY FLOODED	PLEVNA	Yes	flood plain	4,2B3	YES	YES	NO
990: ABBYVILLE LOAM, 0 TO 1 PERCENT SLOPES	ABBYVILLE	No	terrace	---	---	---	---
	KISIWA	Yes	terrace, flood plain	2B3,3	YES	NO	YES
991: ABBYVILLE-KISIWA COMPLEX, 0 TO 2 PERCENT SLOPES, FLOODED	ABBYVILLE	No	terrace	---	---	---	---
	KISIWA	Yes	terrace, flood plain	2B3	YES	NO	NO
	SAXMAN	No	flood plain	---	---	---	---
	DARLOW	No	terrace	---	---	---	---
1005: ALBION SANDY LOAM, 1 TO 3 PERCENT SLOPES	ALBION	No	paleoterrace	---	---	---	---
	SHELLABARGER Unnamed Wet Soils	No Yes	paleoterrace drainageway	--- 2A,2B1,2B2, 2B3	--- YES	--- NO	--- NO
1011: ALBION-SHELLABARGER SANDY LOAMS, 1 TO 3 PERCENT SLOPES	ALBION	No	paleoterrace	---	---	---	---
	SHELLABARGER Unnamed Wet Soils	No Yes	paleoterrace drainageway	--- 2A,2B1,2B2, 2B3	--- YES	--- NO	--- NO

HYDRIC SOIL INTERPRETATIONS  
HYDRIC SOILS LIST  
Stafford County, Kansas

PAGE 3 of 8

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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
1324: CARWAY AND CARBIKA SOILS, 0 TO 1 PERCENT SLOPES	CARWAY	Yes	depression, interdune, paleoterrace	3,2B3	YES	NO	YES
	CARBIKA	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
	SOLVAY	No	interdune, paleoterrace	---	---	---	---
1359: CLARK-OST LOAMS, 3 TO 7 PERCENT SLOPES	CLARK	No	paleoterrace	---	---	---	---
	OST	No	paleoterrace	---	---	---	---
	Unnamed Wet Soils	Yes	drainageway	2A,2B1,2B3, 2B2	YES	NO	NO
1553: DARLOW-ELMER COMPLEX, 0 TO 2 PERCENT SLOPES	DARLOW	No	terrace	---	---	---	---
	ELMER	No	terrace	---	---	---	---
	PUNKIN	No	paleoterrace	---	---	---	---
	CARBIKA	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
	CARWAY	Yes	depression, interdune, paleoterrace	3,2B3	YES	NO	YES
1555: DILLHUT-PLEV COMPLEX, 0 TO 2 PERCENT SLOPES	DILLHUT	No	dune, paleoterrace	---	---	---	---
	PLEV	Yes	depression, interdune, paleoterrace	2B2	YES	NO	NO
	DILLWYN	No	interdune, dune, paleoterrace	---	---	---	---
	WARNUT	Yes	interdune, depression, paleoterrace	3,2B3	YES	NO	YES
1556: DILLHUT-SOLVAY COMPLEX, 0 TO 3 PERCENT SLOPES	DILLHUT	No	dune, paleoterrace	---	---	---	---
	SOLVAY	No	interdune, paleoterrace	---	---	---	---
	DILLWYN	No	interdune, dune, paleoterrace	---	---	---	---
	CARWAY	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
1725: FARNUM AND FUNMAR LOAMS, 0 TO 1 PERCENT SLOPES	FARNUM	No	paleoterrace	---	---	---	---
	FUNMAR	No	paleoterrace	---	---	---	---
	NARON	No	dune, paleoterrace	---	---	---	---
	CARBIKA	Yes	depression, interdune, paleoterrace	3,2B3	YES	NO	YES
	CARWAY	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
1726: FUNMAR AND FARNUM LOAMS, 1 TO 3 PERCENT SLOPES	FARNUM	No	paleoterrace	---	---	---	---
	FUNMAR	No	paleoterrace	---	---	---	---
	NARON	No	dune, paleoterrace	---	---	---	---
	CARBIKA	Yes	depression, interdune, paleoterrace	3,2B3	YES	NO	YES
	CARWAY	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
1985: HAYES FINE SANDY LOAM, 1 TO 5 PERCENT SLOPES	HAYES	No	dune, paleoterrace	---	---	---	---
	ATTICA	No	dune, paleoterrace	---	---	---	---
	SALTCREEK	No	dune, paleoterrace	---	---	---	---

HYDRIC SOIL INTERPRETATIONS  
HYDRIC SOILS LIST  
Stafford County, Kansas

PAGE 4 of 8

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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
1986: HAYES-SOLVAY LOAMY FINE SANDS, 0 TO 5 PERCENT SLOPES	HAYES	No	dune, paleoterrace	---	---	---	---
	SOLVAY	No	interdune, paleoterrace	---	---	---	---
	CARWAY	Yes	depression, interdune, paleoterrace	3, 2B3	YES	NO	YES
	FARNUM	No	paleoterrace	---	---	---	---
1987: HAYES-TURON COMPLEX, 0 TO 5 PERCENT SLOPES	HAYES	No	dune, paleoterrace	---	---	---	---
	TURON	No	dune, paleoterrace	---	---	---	---
	NARON	No	dune, paleoterrace	---	---	---	---
	SOLVAY	No	interdune, paleoterrace	---	---	---	---
	CARWAY	Yes	depression, interdune, paleoterrace	2B3, 3	YES	NO	YES
1988: HAYES LOAMY FINE SAND, 5 TO 10 PERCENT SLOPES	HAYES	No	dune, paleoterrace	---	---	---	---
	PRATT	No	dune, paleoterrace	---	---	---	---
2381: KANZA-NINNECAH SANDY LOAMS, 0 TO 2 PERCENT SLOPES, COMMONLY FLOODED	KANZA	Yes	flood plain	2B3	YES	NO	NO
	NINNECAH	Yes	flood plain	2B3	YES	NO	NO
2556: LANGDON FINE SAND, 0 TO 15 PERCENT SLOPES	LANGDON	No	dune, paleoterrace	---	---	---	---
	TIVIN	No	dune, paleoterrace	---	---	---	---
	TURON	No	dune, paleoterrace	---	---	---	---
	CARWAY	Yes	depression, interdune, paleoterrace	2B3, 3	YES	NO	YES
	WARNU	Yes	interdune, depression, paleoterrace	2B3, 3	YES	NO	YES
2958: NINNECAH FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES, OCCASIONALLY FLOODED	NINNECAH	Yes	flood plain	2B3	YES	NO	NO
	KANZA	Yes	flood plain	2B3	YES	NO	NO
3053: OST LOAM, 1 TO 3 PERCENT SLOPES	OST	No	paleoterrace	---	---	---	---
	SHELLABARGER CLARK	No	paleoterrace	---	---	---	---
	Unnamed Wet Soils	Yes	drainageway	2A, 2B1, 2B2, 2B3	YES	NO	NO
3180: PRATT FINE SAND, 5 TO 10 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	ATTICA	No	dune, paleoterrace	---	---	---	---
3181: PRATT-TURON FINE SANDS, 1 TO 5 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	TURON	No	dune, paleoterrace	---	---	---	---
	HAYES	No	dune, paleoterrace	---	---	---	---
	CARWAY	Yes	depression, interdune, paleoterrace	3, 2B3	YES	NO	YES
	WARNU	Yes	interdune, depression, paleoterrace	2B3, 3	YES	NO	YES

HYDRIC SOIL INTERPRETATIONS  
HYDRIC SOILS LIST  
Stafford County, Kansas

PAGE 5 of 8

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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
3511: SALT CREEK AND NARON FINE SANDY LOAMS, 0 TO 1 PERCENT SLOPES	SALT CREEK	No	dune, paleoterrace	---	---	---	---
	NARON	No	dune, paleoterrace	---	---	---	---
3512: SALT CREEK AND NARON FINE SANDY LOAMS, 1 TO 3 PERCENT SLOPES	SALT CREEK	No	dune, paleoterrace	---	---	---	---
	NARON	No	dune, paleoterrace	---	---	---	---
	FUNMAR	No	paleoterrace	---	---	---	---
	CARBIKA	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
	CARWAY	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
3520: SAXMAN LOAMY SAND, 0 TO 1 PERCENT SLOPES	TAVER	No	paleoterrace	---	---	---	---
	SAXMAN	No	flood plain	---	---	---	---
	WILLOWBROOK	No	flood plain	---	---	---	---
3540: SOLVAY LOAMY FINE SAND, 0 TO 2 PERCENT SLOPES	SOLVAY	No	interdune, paleoterrace	---	---	---	---
	HAYES	No	dune, paleoterrace	---	---	---	---
	CARBIKA	Yes	depression, interdune, paleoterrace	3,2B3	YES	NO	YES
	CARWAY	Yes	depression, interdune, paleoterrace	3,2B3	YES	NO	YES
3639: TAVER LOAM, 0 TO 1 PERCENT SLOPES	TAVER	No	paleoterrace	---	---	---	---
	SALT CREEK	No	dune, paleoterrace	---	---	---	---
	CARBIKA	Yes	depression, interdune, paleoterrace	3,2B3	YES	NO	YES
3640: TIVIN FINE SAND, 10 TO 30 PERCENT SLOPES	TIVIN	No	dune, paleoterrace	---	---	---	---
	LANGDON	No	dune, paleoterrace	---	---	---	---
	PLEV	Yes	depression, interdune, paleoterrace	2B2	YES	NO	NO
3641: TIVIN-DILLHUT FINE SANDS, 0 TO 15 PERCENT SLOPES	TIVIN	No	dune, paleoterrace	---	---	---	---
	DILLHUT	No	dune, paleoterrace	---	---	---	---
	SOLVAY	No	interdune, paleoterrace	---	---	---	---
	CARWAY	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
	WARNUT	Yes	interdune, depression, paleoterrace	2B3,3	YES	NO	YES
	PLEV	Yes	depression, interdune, paleoterrace	2B2	YES	NO	NO
3644: TURON-CARWAY COMPLEX, 0 TO 5 PERCENT SLOPES	TURON	No	dune, paleoterrace	---	---	---	---
	CARWAY	Yes	depression, interdune, paleoterrace	2B3,3	YES	NO	YES
	SOLVAY	No	interdune, paleoterrace	---	---	---	---
3926: WATER	WATER	Yes	---	3,4	NO	YES	YES
An: ALBION SANDY LOAM, 1 TO 4 PERCENT SLOPES	ALBION	No	paleoterrace	---	---	---	---

HYDRIC SOIL INTERPRETATIONS  
HYDRIC SOILS LIST  
Stafford County, Kansas

PAGE 6 of 8

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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
At: ATTICA FINE SANDY LOAM, 1 TO 4 PERCENT SLOPES	ATTICA	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	Unnamed wet soils	Yes	depression	2A, 2B3, 3	YES	NO	YES
Ba: BLANKET SILT LOAM, 0 TO 1 PERCENT SLOPES	BLANKET	No	paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A, 3, 2B3	YES	NO	YES
BIG: BIG SALT MARSH, LITTLE SALT MARSH, AND ASSOCIATED LOW AREAS	BIG SALT MARSH	Unranked	---	---	---	---	---
Ca: CARWILE FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES	CARWILE	Yes	depression, paleoterrace	2A, 3	YES	NO	YES
	Unnamed wet soils	Yes	depression	2A, 2B3, 3	YES	NO	YES
Cw: CARWILE COMPLEX, 0 TO 1 PERCENT SLOPES	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	Unnamed wet soils	Yes	depression	2A, 2B3, 3	YES	NO	YES
Cx: CLARK LOAM, 1 TO 3 PERCENT SLOPES	CLARK	No	paleoterrace	---	---	---	---
Dp: DILLWYN-PLEVNA COMPLEX, 0 TO 5 PERCENT SLOPES	DILLWYN	No	interdune, dune, paleoterrace	---	---	---	---
	PLEVNA	Yes	flood plain	2B3, 4	YES	YES	NO
	Unnamed wet soils	Yes	depression	3, 2B3	YES	NO	YES
Dt: DILLWYN-TIVOLI LOAMY FINE SANDS, 0 TO 15 PERCENT SLOPES	DILLWYN	No	interdune, dune, paleoterrace	---	---	---	---
	TIVOLI	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A, 3	YES	NO	YES
	PLEVNA	Yes	flood plain	2B3, 3	YES	NO	YES
	Unnamed wet soils	Yes	depression	2A, 2B3, 2B2, 3	YES	NO	YES
Fa: FARNUM FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES	FARNUM	No	paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	Unnamed wet soils	Yes	depression	2A, 3, 2B3	YES	NO	YES
Fr: FARNUM LOAM, 0 TO 2 PERCENT SLOPES	FARNUM	No	paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
GRP: GRAVEL PITS	GRAVEL PITS	Unranked	---	---	---	---	---
INT: AQUOLLS	AQUOLLS	Yes	depression, terrace	3, 2B3	YES	NO	YES
Kg: KINGMAN SILTY CLAY LOAM, OCCASIONALLY FLOODED	KINGMAN	Yes	flood plain	2B3	YES	NO	NO
M-W: MISCELLANEOUS WATER	MISCELLANEOUS WATER	---	---	---	---	---	---
Na: NARON FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES	NARON	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	Unnamed wet soils	Yes	drainageway	4, 2B3, 2B2, 3, 2A	YES	YES	YES

HYDRIC SOIL INTERPRETATIONS  
HYDRIC SOILS LIST  
Stafford County, Kansas

PAGE 7 of 8

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
NAA: NARON FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES	NARON	No	dune,	---	---	---	---
	CARWILE	Yes	paleoterrace depression,	2A	YES	NO	NO
	Unnamed wet soils	Yes	paleoterrace depression	3, 2B3, 2A	YES	NO	YES
NBB: NARON FINE SANDY LOAM, 1 TO 3 PERCENT SLOPES	NARON	No	dune,	---	---	---	---
	CARWILE	Yes	paleoterrace depression,	2A	YES	NO	NO
	Unnamed wet soils	Yes	paleoterrace depression	2B3, 3, 2A	YES	NO	YES
Nu: NATRUSTOLLS, OCCASIONALLY FLOODED	NATRUSTOLLS	No	terrace	---	---	---	---
	PLEVNA	Yes	flood plain	2B3, 3	YES	NO	YES
	Unnamed wet soils	Yes	depression	2A, 2B3	YES	NO	NO
Pa: PLEVNA SOILS, FREQUENTLY FLOODED	PLEVNA	Yes	flood plain	2B3, 4	YES	YES	NO
	Unnamed wet soils	Yes	drainageway	2A, 2B3	YES	NO	NO
Pc: PLEVNA SOILS, CHANNELED	PLEVNA	Yes	flood plain	2B3, 4	YES	YES	NO
	Unnamed wet soils	Yes	drainageway	2A, 2B3	YES	NO	NO
Ph: PRATT LOAMY FINE SAND, 5 TO 10 PERCENT SLOPES	PRATT	No	dune,	---	---	---	---
	CARWILE	Yes	paleoterrace depression,	2A	YES	NO	NO
	Unnamed wet soils	Yes	paleoterrace depression	2A, 2B3, 3, 2B <sub>2</sub>	YES	NO	YES
Po: PRATT LOAMY FINE SAND, 1 TO 5 PERCENT SLOPES	PRATT	No	dune,	---	---	---	---
	CARWILE	Yes	paleoterrace depression,	2A	YES	NO	NO
	Unnamed wet soils	Yes	paleoterrace depression	2A, 2B2, 2B3, 3	YES	NO	YES
Pr: PRATT-CARWILE COMPLEX, 0 TO 8 PERCENT SLOPES	PRATT	No	dune,	---	---	---	---
	CARWILE	Yes	paleoterrace depression,	2A, 3	YES	NO	YES
	UNNAMED HYDRIC SOILS	Yes	paleoterrace depression	3, 2B3	YES	NO	YES
	Unnamed wet soils	Yes	depression	2A, 2B2	YES	NO	NO
Pt: PRATT-TIVOLI LOAMY FINE SANDS, 5 TO 15 PERCENT SLOPES	PRATT	No	dune,	---	---	---	---
	TIVOLI	No	paleoterrace	---	---	---	---
	CARWILE	Yes	dune, paleoterrace depression,	2A, 3	YES	NO	YES
	Unnamed wet soils	Yes	paleoterrace depression	2A, 2B3, 2B2, 3	YES	NO	YES
Ta: TABLER LOAM, 0 TO 1 PERCENT SLOPES	TABLER	No	paleoterrace	---	---	---	---
	CARWILE	Yes	depression,	2A	YES	NO	NO
	Unnamed wet soils	Yes	paleoterrace depression	2B3, 3, 2A	YES	NO	YES
TAA: TABLER CLAY LOAM, 0 TO 1 PERCENT SLOPES	TABLER	No	paleoterrace	---	---	---	---
	CARWILE	Yes	depression,	2A	YES	NO	NO
	Unnamed wet soils	Yes	paleoterrace drainageway	2B3, 4, 3, 2A	YES	YES	YES

HYDRIC SOIL INTERPRETATIONS  
HYDRIC SOILS LIST  
Stafford County, Kansas

PAGE 8 of 8

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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
Tv: TIVOLI FINE SAND, 5 TO 20 PERCENT SLOPES	TIVOLI	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A, 3	YES	NO	YES
	Unnamed wet soils	Yes	depression	2A, 2B3, 3, 2B2	YES	NO	YES
W: WATER	WATER	Yes	---	4, 3	NO	YES	YES
	WALDECK	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A, 2B3	YES	NO	NO
Za: ZENDA-NATRUSTOLLS COMPLEX, OCCASIONALLY FLOODED	ZENDA	No	dune, paleoterrace	---	---	---	---
	NATRUSTOLLS	No	---	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
ZSS: ZENDA-DRUMMOND COMPLEX, OCCASIONALLY FLOODED	Unnamed wet soils	Yes	depression	3, 2B3, 2A	YES	NO	YES
	DRUMMOND	No	terrace	---	---	---	---
	ZENDA	No	dune, paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2B3, 2A, 3	YES	NO	YES

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.