Spire STL Pipeline Project

Draft Resource Report 7
Soils

FERC Docket No.PF16-9-000

Pre-filing draft
October 2016

Public

RESOURCE REPORT 7 - SOILS	
SUMMARY OF FILING INFORMATION	
Information	**Found in**
1. Identify, describe, and group by milepost the soils affected by the proposed pipeline and aboveground facilities - Title 18 Code of Federal Regulations (CFR) part (§) 380.12(I)(1)	Table 7.1-1 and Appendix 7-B.
2. For aboveground facilities that would occupy sites over 5 acres, determine the acreage of prime farmland soils that would be affected by construction and operation - 18 CFR § 380.12(I)(2)	Section 7.2.
3. Describe by milepost potential impacts on soils - 18 CFR § 380.12(I)(3,4)	Table 7.1-1 and Appendix 7-B.
4. Identify proposed mitigation to minimize impact on soils and compare with the staff's Upland Erosion Control, Revegetation, and Maintenance Plan - 18 CFR § 380.12(I)(5)	Section 7.5.
INFORMATION RECOMMENDED OR OFTEN MISSING	
1. If the applicant generally proposes to adopt the FERC staff's Plan except at certain locations, identify on a site-specific basis locations where alternative measures are proposed, and describe the alternative measures that will ensure an equal or greater level of protection.	Section 7.5.
2. Identify invasive species and/or noxious weeds that occur in the area and measure to prevent the introduction and/or spread of these species.	Resource Report 3.
3. Provide documentation of the consultation with the NRCS or other applicable agencies regarding seed mixes, erosion control, and invasive species/noxious weeds.	Section 7.4.

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Acronyms and Abbreviations

BMP	Best Management Practice
CFR	Code of Federal Regulations
E&SCs	erosion and sediment controls
E&SCP	Erosion and Sediment Control Plan
FERC	Federal Energy Regulatory Commission
IDOA	Illinois Department of Agriculture
MLV	mainline valve
MP	Milepost
Plan	FERC's Upland Erosion Control, Revegetation, and Maintenance Plan
Procedures	FERC's Wetland and Waterbody Construction and Mitigation Procedures
Project	Spire STL Pipeline Project
REX	Rockies Express Pipeline LLC
Spire	Spire STL Pipeline LLC
SWCD	Soil and Water Conservation District
USACE	United States Army Corps of Engineers
USDA-NRCS	United States Department of Agriculture, Natural Resources Conservation Service

Soils

7.1 Pipeline

This resource report identifies and describes the soils within Spire STL Pipeline LLC ("Spire") Spire STL Pipeline Project "(Project"). This includes their associated characteristics and limitations, and the proposed mitigation for impacts.

Soil information for the Project area was obtained from the United States Department of Agriculture, Natural Resources Conservation Service ("USDA-NRCS") Soil Surveys of Scott, Greene and Jersey Counties, Illinois and St. Charles and St. Louis Counties, Missouri (USDA-NRCS, 2015a and USDA-NRCS, 2015b). The USDA-NRCS Web Soil Survey ("WSS") is a comprehensive digital version of the original soil surveys developed by the NRCS for use with geographic information systems. This resource provides the most detailed level of soil information for natural resource planning and management. The WSS is a mapping tool linked to an attribute database that gives the location of the component soils and their properties for each soil map unit (USDA-NRCS, 2015a). The attribute data consists of interpretive groupings, physical properties, and chemical properties. Attribute data apply to the whole soil (e.g., listed hydric, prime farmland soils, or slope calls) as well as to the layer data for soil horizons (e.g., texture or permeability). The soil attribute data can be used in conjunction with spatial data to describe the soils in a particular area. Soils mapping for the Project is provided in Appendix 7-A. A summary of the soils affected by the Project by milepost ("MP") is provided in Appendix 7-B.

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
Scott	IL171	119D2	Elco silt loam, 10 to 18 percent slopes, eroded	Elco	94	10	18	SIL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess over paleosol formed in till	Ground moraines
Scott	IL171	119D3	Elco silty clay loam, 10 to 18 percent slopes, severely eroded	Elco	95	10	18	SICL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess over paleosol formed in till	Ground moraines
Scott	IL171	17A	Keomah silt loam, zero to two percent slopes	Keomah	90	0	2	SIL	SP	MS	Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
Scott	IL171	257A	Clarksdale silt loam, zero to two percent slopes	Clarksdale	90	0	2	SIL	SP	M	Fine, smectitic, mesic Udollic Endoaqualfs	Loess	Ground moraines, till plains
Scott	IL171	279B	Rozetta silt loam, two to five percent slopes	Rozetta	90	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
				Keomah	90	2	5	SIL	SP		Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
				Clarksdale	90	2	5	SIL	SP		Fine, smectitic, mesic Udollic Endoaqualfs	Loess	Ground moraines, till plains
				Sable	85	2	5	SIL	P		Fine-silty, mixed, superactive, mesic Typic Endoaquolls	Loess	Till plains, swales
Scott	IL171	279C2	Rozetta silt loam, five to 10 percent slopes, eroded	Rozetta	90	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
				Keomah	90	5	10	SIL	SP		Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
Scott	IL171	279C3	Rozetta silty clay loam, five to 10 percent slopes, severely eroded	Rozetta	94	5	10	SICL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Till Plains, ground moraines
Scott	IL171	280C2	Fayette silt loam, five to 10 percent slopes, eroded	Fayette	95	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Side slopes and ground moraines
Scott	IL171	280D2	Fayette silt loam, 10 to 18 percent slopes, eroded	Fayette	95	10	18	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines
Scott	IL171	119D2	Elco silt loam, 10 to 18 percent slopes, eroded	Elco	94	10	18	SIL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess over paleosol formed in till	Ground moraines
Scott	IL171	119D3	Elco silty clay loam, 10 to 18 percent slopes, severely eroded	Elco	95	10	18	SICL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess over paleosol formed in till	Ground moraines
Scott	IL171	17A	Keomah silt loam, zero to two percent slopes	Keomah	90	0	2	SIL	SP	MS	Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
Scott	IL171	257A	Clarksdale silt loam, zero to two percent slopes	Clarksdale	90	0	2	SIL	SP	M	Fine, smectitic, mesic Udollic Endoaqualfs	Loess	Ground moraines, till plains

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
Scott	IL171	279B	Rozetta silt loam, two to five percent slopes	Rozetta	90	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
				Keomah	90	2	5	SIL	SP		Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
				Clarksdale	90	2	5	SIL	SP		Fine, smectitic, mesic Udollic Endoaqualfs	Loess	Ground moraines, till plains
				Sable	85	2	5	SIL	P		Fine-silty, mixed, superactive, mesic Typic Endoaquolls	Loess	Till plains, swales
Scott	IL171	279C2	Rozetta silt loam, five to 10 percent slopes, eroded	Rozetta	90	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
				Keomah	90	5	10	SIL	SP		Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
Scott	IL171	279C3	Rozetta silty clay loam, five to 10 percent slopes, severely eroded	Rozetta	94	5	10	SICL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Till Plains, ground moraines
Scott	IL171	280C2	Fayette silt loam, five to 10 percent slopes, eroded	Fayette	95	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Side slopes and ground moraines
Scott	IL171	280D2	Fayette silt loam, 10 to 18 percent slopes, eroded	Fayette	95	10	18	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines
Scott	IL171	280D3	Fayette silty clay loam, 10 to 18 percent slopes, severely eroded	Rozetta	95	10	18	SICL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines
Scott	IL171	3078A	Arenzville silt loam, zero to two percent slopes, frequently flooded	Arenzville	95	0	2	SIL	W	M	Coarse-silty, mixed, superactive, nonacid, mesic Typic Udifluvents	Silty alluvium	Flood plains
Scott	IL171	3333A	Wakeland silt loam, zero to two percent slopes, frequently flooded	Wakeland	90	0	2	SIL	SP	M	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents	Alluvium	Flood plains
Scott	IL171	43A	Ipava silt loam, zero to two percent slopes	Ipava	85	0	2	SIL	SP	M	Fine, smectitic, mesic Aquic Argiudolls	Loess	Till plains, broad ground moraines
				Virden	90	0	2	SIL	P		Fine, smectitic, mesic Vertic Argiaquolls	Loess	Till Plains, ground moraines
				Sable	85	0	2	SIL	P		Fine-silty, mixed, superactive, mesic Typic Endoaquolls	Loess	Till plains, swales
				Denny	95	0	2	SIL	P		Fine, smectitic, mesic Mollic Albaqualfs	Loess	Depressions, till plains
Scott	IL171	50A	Virden silty clay loam, zero to two percent slopes	Virden	90	0	2	SICL	P	M	Fine, smectitic, mesic Vertic Argiaquolls	Loess	Till Plains, ground moraines

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
Scott	IL171	8E2	Hickory silt loam, 18 to 25 percent slopes, eroded	Hickory	90	18	25	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Illinois till	Ground moraines, till plains
Scott	IL171	8F	Hickory silt loam, 18 to 35 percent slopes	Hickory	89	18	35	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Loamy till	Till Plains, ground moraines
				Ava	90	2	5	SIL	MW		N/A	Loess over mixed loess and drift over till	Convex ridges on loess covered till plains
Greene	IL061	17A	Keomah silt loam, zero to two percent slopes	Keomah	90	0	2	SIL	SP	MS	Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
Greene	IL061	242A	Kendall silt loam, zero to two percent slopes	Kendall	90	0	2	SIL	SP	M	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs	Loess over outwash	Outwash plains
Greene	IL061	257B	Clarksdale silt loam, two to five percent slopes	Clarksdale	90	2	5	SIL	SP	M	Fine, smectitic, mesic Udollic Endoaqualfs	Loess	Ground moraines, till plains
Greene	IL061	279B	Rozetta silt loam, two to five percent slopes	Rozetta	90	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
				Keomah	90	2	5	SIL	SP		Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
				Clarksdale	90	2	5	SIL	SP		Fine, smectitic, mesic Udollic Endoaqualfs	Loess	Ground moraines, till plains
				Sable	85	2	5	SIL	P		Fine-silty, mixed, superactive, mesic Typic Endoaquolls	Loess	Till plains, swales
Greene	IL061	279C2	Rozetta silt loam, five to 10 percent slopes, eroded	Rozetta	90	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
				Keomah	90	4	10	SIL	SP		Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
Greene	IL061	279D2	Rozetta silt loam, 10 to 18 percent slopes, eroded	Rozetta	94	10	18	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
Greene	IL061	280B	Fayette silt loam, two to five percent slopes	Fayette	97	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines
Greene	IL061	280C2	Fayette silt loam, five to 10 percent slopes, eroded	Fayette	95	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Side slopes and ground moraines
Greene	IL061	280D	Fayette silt loam, 10 to 18 percent slopes	Fayette	92	10	18	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, uplands
Greene	IL061	280D2	Fayette silt loam, 10 to 18 percent slopes, eroded	Fayette	95	10	18	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
Greene	IL061	3070A	Beaucoup silty clay loam, zero to two percent slopes, frequently flooded	Beaucoup	85	0	2	SICL	P	MS	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls	Silty Alluvium	Flood plains
Greene	IL061	3074A	Radford silt loam, zero to two percent slopes, frequently flooded	Radford	90	0	2	SIL	SP	M	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls	Alluvium	Flood plains
Greene	IL061	3331A	Haymond silt loam, zero to two percent slopes, frequently flooded	Haymond	90	0	2	SIL	W	M	Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts	Silty Alluvium	Flood plains
Greene	IL061	3451A	Lawson silt loam, zero to two percent slopes, frequently flooded	Lawson	92	0	2	SIL	P	M	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls	Silty Alluvium	Flood plains
Greene	IL061	45A	Denny silt loam, zero to two percent slope	Denny	95	0	2	SIL	P	MS	Fine, smectitic, mesic Mollic Albaqualfs	Loess	Depressions, till plains
Greene	IL061	47A	Virden silt loam, zero to two percent slopes	Virden	90	0	2	SIL	P	MS	Fine, smectitic, mesic Vertic Argiaquolls	Loess	Till Plains, ground moraines
Greene	IL061	51A	Muscatune silt loam, zero to two percent slopes	Muscatune	90	0	2	SIL	P	M	Fine-silty, mixed, superactive, mesic Aquic Argiudolls	Peoria loess	Ground moraines, till plains
Greene	IL061	51B	Muscatune silt loam, two to five percent slopes	Muscatune	95	2	5	SIL	P	M	Fine-silty, mixed, superactive, mesic Aquic Argiudolls	Peoria loess	Till Plains, ground moraines
Greene	IL061	61A	Atterberry silt loam, zero to two percent slopes	Atterberry	98	0	2	SIL	SP	M	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs	Loess	Flats
Greene	IL061	675B	Greenbush silt loam, two to five percent slopes	Greenbush	95	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs	Loess	Ground moraines
Greene	IL061	675C2	Greenbush silt loam, five to 10 percent slopes, eroded	Greenbush	91	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs	Loess	Ridges, side slopes on ground moraines
Greene	IL061	68A	Sable silty clay loam, zero to two percent slopes	Sable	85	0	2	SICL	P	M	Fine-silty, mixed, superactive, mesic Typic Endoaquolls	Loess	Till Plains, swales
Greene	IL061	7102B	La Hogue loam, two to five percent slopes, rarely flooded	La Hogue	100	2	5	L	SP	MR	N/A	Alluvium	Flood plains
Greene	IL061	7148A	Proctor silt loam, zero to two percent slopes, rarely flooded	Proctor	95	0	2	SIL	W	M	N/A	Loess over outwash	Flood plains
Greene	IL061	86B	Osco silt loam, two to five percent slopes	Osco	90	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Argiudolls	Loess	Ground moraines, till plains
Greene	IL061	86C2	Osco silt loam, five to ten percent slopes	Osco	90	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Argiudolls	Loess	Ground moraines, till plains

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
Greene	IL061	8D	Hickory silt loam, 10 to 18 percent slopes	Hickory	90	10	18	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Loamy till	Ground moraines, till plains
				Ava	90	10	18	SIL	MW		N/A	Loess over mixed loess and drift over till	Convex ridges on loess covered till plains
Greene	IL061	8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	Hickory	90	10	18	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Illinois till	Ground moraines, till plains
Greene	IL061	8F	Hickory silt loam, 18 to 35 percent slopes	Hickory	89	18	35	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Loamy till	Ground moraines, till plains
				Ava	90	2	5	SIL	MW		N/A	Loess over mixed loess and drift over till	Convex ridges on loess covered till plains
Greene	IL061	8F2	Hickory silt loam, 18 to 35 percent slopes, eroded	Hickory	90	18	35	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Illinois till	Ground moraines, till plains
Greene	IL061	W	Water	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jersey	IL083	119C2	Elco silt loam, five to 10 percent slopes, eroded	Elco	97	5	10	SIL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess over paleosol formed in till	Ground moraines
Jersey	IL083	119C3	Elco silty clay loam, five to 10 percent slopes, severely eroded	Elco	95	5	10	SICL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess over paleosol formed in till	Ground moraines
Jersey	IL083	119D2	Elco silt loam, 10 to 18 percent slopes, eroded	Elco	94	10	18	SIL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess over paleosol formed in till	Ground moraines
Jersey	IL083	119D3	Elco silty clay loam, 10 to 18 percent slopes, severely eroded	Elco	95	10	18	SICL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess over paleosol formed in till	Ground moraines
Jersey	IL083	16A	Rushville silt loam, zero to two percent slopes	Rushville	90	0	2	SIL	P	MS	Fine, smectitic, mesic Typic Albaqualfs	Loess	Depressions on ground moraines
Jersey	IL083	259C2	Assumption silt loam, five to 10 percent slopes, eroded	Assumption	90	5	10	SIL	MW	M	Fine-silty, mixed, superactive, mesic Mollic Oxyaquic Hapludalfs	Fine-silty loess over paleosol formed in loamy till	Till Plains, ground moraines
Jersey	IL083	267A	Caseyville silt loam, zero to two percent slopes	Caseyville	90	0	2	SIL	SP	M	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs	Loess	Ground moraines
Jersey	IL083	278A	Stronghurst silt loam, zero to two percent slopes	Caseyville	90	0	2	SIL	SP	M	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs	Loess	Flats

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
Jersey	IL083	279B	Rozetta silt loam, two to five percent slopes	Rozetta	90	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
				Keomah	90	0	2	SIL	SP		Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
				Clarksdale	90	0	2	SIL	SP		Fine, smectitic, mesic Udollic Endoaqualfs	Loess	Ground moraines, till plains
				Sable	85	0	2	SIL	P		Fine-silty, mixed, superactive, mesic Typic Endoaquolls	Loess	Till plains, swales
Jersey	IL083	279C2	Rozetta silt loam, five to 10 percent slopes, eroded	Rozetta	90	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
				Keomah	90	5	10	SIL	SP		Fine, smectitic, mesic Aeric Endoaqualfs	Loess	Ground moraines, till plains
Jersey	IL083	279C3	Rozetta silty clay loam, five to 10 percent slopes, severely eroded	Rozetta	94	5	10	SICL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Till Plains, ground moraines
Jersey	IL083	279D2	Rozetta silt loam, 10 to 18 percent slopes, eroded	Rozetta	94	10	18	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines, till plains
Jersey	IL083	279D3	Rozetta silty clay loam, 10 to 18 percent slopes, severely eroded	Rozetta	94	10	18	SICL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines
Jersey	IL083	280B	Fayette silt loam, two to five percent slopes	Fayette	97	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines
Jersey	IL083	280C2	Fayette silt loam, five to 10 percent slopes, eroded	Fayette	95	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Side slopes and ground moraines
Jersey	IL083	280D3	Fayette silty clay loam, 10 to 18 percent slopes, severely eroded	Rozetta	95	10	18	SICL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines
Jersey	IL083	3333A	Wakeland silt loam, zero to two percent slopes, frequently flooded	Wakeland	90	0	2	SIL	SP	M	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents	Alluvium	Flood plains
Jersey	IL083	3451A	Lawson silt loam, zero to two percent slopes, frequently flooded	Lawson	92	0	2	SIL	P	M	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls	Silty Alluvium	Flood plains
Jersey	IL083	3475A	Elsah gravelly loam, zero to two percent slopes, frequently flooded	Elsah	90	0	2	GR-L	W	R	Loamy-skeletal, mixed, superactive, nonacid, mesic Typic Udifluvents	Gravelly alluvium	Flood plains
Jersey	IL083	3634A	Blyton silt loam, zero to two percent slopes, frequently flooded	Blyton	90	0	2	SIL	MW	M	Coarse-silty, mixed, superactive, nonacid, mesic Oxyaquic Udifluvents	Silty alluvium	Flood plains
Jersey	IL083	477B	Winfield silt loam, two to five percent slopes	Winfield	95	2	5	SIL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess	Ground moraines, loess hills

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
Jersey	IL083	477C2	Winfield silt loam, five to 10 percent slopes, eroded	Winfield	95	5	10	SIL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess	Loess hills
Jersey	IL083	477D3	Winfield silty clay loam, 10 to 18 percent slopes, severely eroded	Winfield	95	10	18	SICL	MW	M	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs	Loess	Loess hills
Jersey	IL083	515B2	Bunkum silt loam, two to five percent slopes, eroded	Bunkum	90	2	5	SIL	SP	MS	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs	Loess over silty pedi-sediment	Ground moraines
Jersey	IL083	515C3	Bunkum silty clay loam, five to 10 percent slopes, severely eroded	Bunkum	93	5	10	SICL	SP	MS	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs	Loess over silty pedisediment	Uplands, ground moraines
Jersey	IL083	51A	Muscatune silt loam, zero to two percent slopes	Muscatune	90	0	2	SIL	P	M	Fine-silty, mixed, superactive, mesic Aquic Argiudolls	Peoria loess	Ground moraines, till plains
Jersey	IL083	538B2	Emery silt loam, two to five percent slopes, eroded	Emery	90	2	5	SIL	SP	M	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs	Loess over silty pedisediment	Ground moraines
Jersey	IL083	538C2	Emery silt loam, five to 10 percent slopes, eroded	Emery	90	5	10	SIL	SP	M	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs	Loess over silty pedisediment	Ground moraines
Jersey	IL083	61A	Atterberry silt loam, zero to two percent slopes	Atterberry	98	0	2	SIL	SP	M	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs	Loess	Flats
Jersey	IL083	675C2	Greenbush silt loam, five to 10 percent slopes, eroded	Greenbush	91	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs	Loess	Ridges, side slopes on ground moraines
Jersey	IL083	68A	Sable silty clay loam, zero to two percent slopes	Sable	85	0	2	SICL	P	M	Fine-silty, mixed, superactive, mesic Typic Endoaquolls	Loess	Till Plains, swales
Jersey	IL083	79B	Menfro silt loam, two to five percent slopes	Menfro	90	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Loess hills, uplands
Jersey	IL083	79C2	Menfro silt loam, five to 10 percent slopes, eroded	Menfro	85	5	10	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Uplands, loess hills
Jersey	IL083	79D2	Menfro silt loam, 10 to 18 percent slopes, eroded	Menfro	90	10	18	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Ground moraines
Jersey	IL083	833G	Goss-Menfro complex, 35 to 60 percent slopes	Goss	60	35	60	N/A	W	M	Clayey-skeletal, mixed, active, mesic Typic Paleudalfs	Clayey residuum weathered from cherty limestone	Hillslopes
				Menfro	30	35	60	N/A	W		Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hillslopes
Jersey	IL083	837G	Rock outcrop, limestone-Lacrescent complex, 35 to 60 percent slopes	Lacrescent	30	35	60	N/A	W	N/A	Loamy-skeletal, mixed, superactive, mesic Typic Hapludolls	Colluvium	Bluffs
Jersey	IL083	86B	Osco silt loam, two to five percent slopes	Osco	90	2	5	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Argiudolls	Loess	Ground moraines, till plains

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
Jersey	IL083	8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	Hickory	90	10	18	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Illinois till	Ground moraines, till plains
Jersey	IL083	8F2	Hickory silt loam, 18 to 35 percent slopes, eroded	Hickory	90	18	35	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Illinois till	Ground moraines, till plains
Jersey	IL083	8G	Hickory silt loam, 35 to 60 percent slopes	Hickory	90	35	60	SIL	W	M	Fine-loamy, mixed, active, mesic Typic Hapludalfs	Loamy till	Ground moraines, till plains
				Ava	90	35	60	SIL	MW		N/A	Loess over mixed loess and drift over till	Convex ridges on loess covered till plains
Jersey	IL083	W	Water	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Charles	MO183	13598	Booker silty clay, frequently ponded, zero to two percent slopes, occasionally flooded	Booker	95	0	2	SIC	VP	VS	Very-fine, smectitic, mesic Cumulic Vertic Endoaquolls	Alluvium	River Valleys and flood plain steps
St. Charles	MO183	36023	Landes fine sandy loam, zero to two percent slopes, occasionally flooded	Landes	90	0	2	FSL	MW	MR	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls	Alluvium	River Valleys and flood plain steps
St. Charles	MO183	64016	Blase silty clay loam, zero to two percent slopes, rarely flooded	Blase	95	0	2	SICL	SP	M	Clayey over loamy, smectitic, mesic Aquic Hapludolls	Clayey alluvium over loamy alluvium	River Valleys, Stream terraces
St. Charles	MO183	64024	DeSioux loam, zero to two percent slopes, rarely flooded	DeSioux	95	0	2	L	W	M	Coarse-silty, mixed, superactive, mesic Cumulic Hapludolls	Alluvium	River Valleys, Stream terraces
St. Charles	MO183	66012	Blake silt loam, zero to two percent slopes, frequently flooded	Blake	85	0	2	SIL	SP	MS	Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents	Alluvium	River valleys, flood plains
St. Charles	MO183	66019	Lowmo silt loam, zero to two percent slopes, occasionally flooded	Lowmo	85	0	2	SIL	W	M	Coarse-silty, mixed, superactive, mesic Fluventic Hapludolls	Alluvium	River Valleys and flood plain steps
St. Charles	MO183	66059	Peers silty clay loam, zero to two percent slopes, occasionally flooded	Peers	85	0	2	SICL	SP	M	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls	Alluvium	River Valleys and flood plain steps
St. Charles	MO183	66066	Carlow silty clay loam, zero to two percent slopes, occasionally flooded	Carlow	90	0	2	SICL	P	VS	Fine, smectitic, mesic Vertic Endoaquolls	Alluvium	River Valleys and flood plain steps
St. Charles	MO183	66100	Portage clay, zero to two percent slopes, occasionally flooded, frequently ponded	Portage	85	0	2	C	VP	VS	Very-fine, smectitic, mesic Vertic Endoaquolls	Alluvium	River Valleys and flood plain steps
St. Charles	MO183	66110	SansDessein silty clay, zero to two percent slopes, occasionally flooded	SansDessein	90	0	2	SIC	P	MS	Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls	Alluvium	River Valleys and flood plain steps

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
St. Charles	MO183	66126	Haynie-Treloar-Blake complex, zero to two percent slopes, frequently flooded	Haynie	45	0	2	N/A	W	M	Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents	Alluvium	River valleys, flood plains
				Treloar	25	0	2	N/A	MW		Sandy over loamy, mixed, superactive, calcareous, mesic Oxyaquic Udifluvents	Sandy alluvium over loamy alluvium	River Valleys and flood plain steps
				Blake	20	0	2	N/A	SP		Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents	Alluvium	River valleys, flood plains
St. Charles	MO183	99001	Water	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Louis	MO189	13598	Booker silty clay, frequently ponded, zero to two percent slopes, occasionally flooded	Booker	95	0	2	SIC	VP	VS	Very-fine, smectitic, mesic Cumulic Vertic Endoaquolls	Alluvium	River valleys and floodplain steps
St. Louis	MO189	60001	Menfro silt loam, five to nine percent slopes, eroded	Menfro	100	5	9	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hills, hillslopes
St. Louis	MO189	60003	Menfro silt loam, nine to 14 percent slopes, eroded	Menfro	85	9	14	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hills, hillslopes
St. Louis	MO189	60004	Menfro silt loam, 14 to 20 percent slopes, eroded	Menfro	90	14	20	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hills, hillslopes
St. Louis	MO189	60005	Menfro silt loam, 20 to 45 percent slopes	Menfro	89	20	45	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hills, hillslopes
St. Louis	MO189	60025	Urban land-Harvester complex, two to nine percent slopes	Harvester	40	2	9	N/A	MW	N/A	Fine-silty, mixed, superactive, nonacid, mesic Oxyaquic Udorthents	Loess	Hills, interfluves
St. Louis	MO189	60165	Menfro silt loam, two to five percent slopes	Menfro	85	2	5	SIL	W	MS	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hills, interfluves
St. Louis	MO189	60171	Menfro silt loam, karst, two to 14 percent slopes, eroded	Menfro	90	2	14	SIL	W	M	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hills, hillslopes
St. Louis	MO189	60176	Menfro silt loam, karst, nine to 35 percent slopes	Menfro	85	9	35	SIL	W	MS	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hills, hillslopes
St. Louis	MO189	60189	Menfro-Urban land complex, two to five percent slopes	Menfro	55	2	5	N/A	W	MS	Fine-silty, mixed, superactive, mesic Typic Hapludalfs	Loess	Hills, interfluves
St. Louis	MO189	60223	Urban land-Harvester complex, nine to 20 percent slopes	Harvester	25	9	20	N/A	MW	N/A	Fine-silty, mixed, superactive, nonacid, mesic Oxyaquic Udorthents	Loess	Hills, hillslopes
St. Louis	MO189	60224	Urban land-Harvester complex, karst, two to nine percent slopes	Harvester	30	2	9	N/A	MW	N/A	Fine-silty, mixed, superactive, nonacid, mesic Oxyaquic Udorthents	Loess	Hills, hillslopes
St. Louis	MO189	66024	Wilbur silt loam, zero to two percent slopes, frequently flooded	Wilbur	80	0	2	SIL	MW	M	Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrudepts	Alluvium	Flood plains, river valleys

Table 7.1-1. Selected Physical and Interpretive Characteristics of the Soil Map Units within the Project Area (Continued)

County Name	County Code	County/Map Unit Symbol	Map Unit Name	Component Name	Component Percent	Percent Slope		Surface Texture[1]	Drainage Class[2]	Permeability[3]	Taxonomic Classification	Parent Material	Landforms
						Low	High						
St. Louis	MO189	66047	Nevin-Urban land complex, zero to two percent slopes	Nevin	50	0	2	N/A	SP	M	Fine-silty, mixed, superactive, mesic Aquic Argiudolls	Loess	Interfluves, hills
St. Louis	MO189	99000	Pits, quarry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Louis	MO189	99001	Water	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

1 Surface textures may include: silty clay (SIL), clay loam (CL), silty clay loam (SICL), silt loam (SIL), loam (L), fine sandy loam (FSL), sandy loam (SL), gravelly sandy loam (GR-SL), loamy fine sand (LFS), and extremely gravelly loamy coarse sand (GRX-LCOS). N/A-Not Applicable

2 Drainage classes may include: very poorly (VP), poorly (P), somewhat poorly (SP), moderately well (MW), well (W), somewhat excessively (SE), and excessively (E) drained. N/A-Not Applicable

3 Permeability rates may include: very rapid (VR), rapid (R), moderately rapid (MR), moderate (M), moderately slow (MS), and slow (S).
N/A-Not Applicable

7.2 Aboveground Facilities

No major aboveground facility sites greater than 5 acres in size are proposed for the Project.

Minor ancillary aboveground facilities to be included as part of the Project include the Rockies Express Pipeline LLC ("REX") Receipt Station and Laclede/Lange Delivery Station along the 24-inch pipeline, and the modifications at the existing Redman Delivery Station, and the new station to be constructed at the existing MRT Bi-directional Station along Line 880. Additionally, three mainline valves ("MLVs") will be installed on the proposed 24-inch diameter pipeline. Two MLVs will be installed on Line 880. Additional information about these facilities can be found in Resource Report 1. Soil data pertaining to these aboveground facilities is described below.

- REX Receipt Station - The REX Receipt Station crosses the 279B, 279C3, and 280D3 soil series, and is anticipated to permanently disturb 2.18 acres. Of this, 1.22 acres are prime farmland and 0.92-acre is considered farmland of statewide importance.
- Laclede/Lange Delivery Station - The Laclede/Lange Delivery Station crosses the 60001 and 60176 soil series, and is anticipated to permanently disturb 1.68 acres. Of this, 0.57-acre is considered farmland of statewide importance.
- Redman Delivery Station – LGC's existing Redman Delivery Station crosses the 66047 soil series, and is anticipated to permanently disturb 0.71-acre. Of this, 0.71-acre is considered prime farmland if drained according to the USGS-NRCS (USGS-NRCS, 2015). All work will be done within the existing fenced facility.
- MRT Bi-directional Station - The MRT Bi-directional Station crosses the 13598 and 60003 soil series, and is anticipated to permanently disturb 3.24 acres. Of this, 0.69-acre is considered farmland of statewide importance. Because there is an existing facility presently located at the site which will be expanded to accommodate the facilities for this Project, much of the soils at this location are likely already partially disturbed. No prime farmland is anticipated to be crossed.

Descriptions of the soil series are provided as Appendix 7-B.

7.3 Construction/Operation Impacts

Construction activities that have the potential to adversely affect soils and revegetation potential within the Project area include: clearing and grading, trenching, backfilling, and grading during restoration. Potential soil impacts include: loss of soils due to water or wind erosion, especially on steep slopes or with fine sandy soils; reduction of soil quality by mixing topsoil with subsoil or by bringing excess rocks to the surface; soil compaction due to traffic by heavy equipment; and disruption of surface and subsurface drainage systems.

To minimize or avoid impacts on soils, Spire will implement its Project-specific Stormwater Pollution Prevention Plan ("SWPPP") (Resource Report 2, Appendix 2B), which incorporates the Federal Energy Regulatory Commission ("FERC") *Upland Erosion Control, Revegetation, and Maintenance Plan* ("Plan") and FERC's *Wetland and Waterbody Construction and Mitigation Procedures* ("Procedures") (May 2013), during construction and

operation of the Project. Deviations from the Plan and Procedures are described in Resource Report 1, Appendix 1-F.

Additionally, in conjunction with the Illinois Department of Agriculture ("IDOA"), Spire has developed a draft project-specific Agricultural Impact Mitigation Agreement ("AIMA") which incorporates the Illinois Pipeline Construction Standards and Policies for the portions of the Project in Illinois Project. A version of this AIMA was submitted to the IDOA in August 2016 and is under review by the IDOA. An executed AIMA will be provided in Appendix 7-C in the FERC application.

Appendix 7-B and Table 7.3-1 provide information regarding soil limitations for the Project. The primary soil limitations identified along the Project route are: erosion hazard, compaction prone, revegetation concerns, potential for introduction of stones and rocks into topsoil, shallow bedrock, prime or unique farmland or farmland of statewide importance and hydric soils.

7.3-1 Acres of Soil Characteristics Affected by the Proposed Pipeline[1]

Facility/ County, State	Total Acres in County	Prime Farmland (acres)[2]	Hydric Soils (acres)[2]	Compaction Prone (acres)[3]	Highly Erodible		Revegetation Concerns (acres)[6]	Stony/ Rocky (acres)[7]	Shallow to Bedrock (acres)[8]
					Water (acres)[4]	Wind (acres)[5]			
24-Inch Pipeline									
Scott County, Illinois	49.14	19.26	5.11	35.72	3.73	0.00	8.80	0.00	1.46
Greene County, Illinois	354.92	170.85	60.54	72.92	0.00	0.00	65.76	0.00	0.23
Jersey County, Illinois	217.82	115.30	21.33	60.67	7.69	0.00	45.84	2.16	13.30
St. Charles County, Missouri	186.11	115.21	67.72	73.06	0.00	0.00	0.00	0.00	14.45
St. Louis County, Missouri	6.78	0.00	0.00	0.00	0.46	0.00	2.99	0.00	0.00
Line 880									
St. Louis County, Missouri	10.59	1.08	0.00	0.00	5.16	0.00	9.42	0.00	0.00
Total	825.36	421.69	154.70	242.37	17.04	0.00	132.82	2.16	29.43

Notes:

[1] Area affected includes the construction right-of-way and additional temporary workspace. The soils data in the table does not include areas of open water.

[2] As designated by the NRCS. Prime farmland does not include those soils that are considered prime if artificial drainage is implemented.

[3] Includes soils in somewhat poor to very poor drainage classes with surface textures of sandy clay loam and finer.

[4] Land in capability subclasses 4E through 8E and soils with an average slope greater than or equal to 9 percent.

[5] Soils with a wind erodibility group classification of 1 or 2.

[6] Soils with a surface texture of sandy loam or coarser and are moderately well to excessively drained and soils with an average slope greater than or equal to 9 percent.

[7] Includes soils with a cobbley, stony, boulder, shaly, very gravelly, or extremely gravelly modifier to the textural class of the surface layer.

[8] Soils identified as containing bedrock at a depth of 5 feet or less from the surface.

7.3.1 Erosion Hazard

Soil erosion potential is affected by the soil lithology, including mineralogy, grain size, texture and organic content. Soil erosion potential is influenced by slope and exposure to erosion mechanisms. Soil erosion increases in inverse proportion to the effectiveness of vegetation cover (i.e., soils with denser vegetation cover are less susceptible to erosion). Removal of vegetation associated with construction activities, whether by direct stripping or by other mechanical means, greatly increases erosion potential. The classification of a soil as highly erodible by the USDA-NRCS is directly related to the soil's susceptibility to erosion by water or wind. Soils that are classified as having high erosion potential can be highly erodible but do not always exhibit this condition because of the multitude of parameters that require evaluation, such as, soil texture, structure, length and percent of slope, vegetative cover, and rainfall or wind intensity. Typically field determinations of the length of slope class crossed are needed before a soil can be definitively identified as having high erosion potential. The Project potentially crosses 17.04 acres of soil characterized as having a high potential for erosion by water; soil characterized by having a high potential for erosion by wind is not crossed by the Project. The soils crossed by the proposed Project route that have a high potential for erosion by water are summarized in Appendix 7-B.

7.3.2 Compaction Prone

Soils with a high potential for compaction will be affected during construction activities through the repeated movement of machinery across the soil surface as well as from the staging of materials. Soils with high shrink-swell potential and poor drainage characteristics tend to be susceptible to compaction, particularly when wet.

These soils tend to have high clay content composed of platy particles with water in interstitial spaces. Clay particles will become compacted through repeated stress. Soils with a high silt or sand content tend to be composed of sub-rounded to rounded particles, and are less compactable. Although surface "crusts" may form on these types of soils when subjected to repeated traffic, upon drying, the compacted particles are often readily separated. Formation of hardpan is a potential result of repeated traffic over susceptible soils. The formation of hardpan is typically limited to soils with high to very high shrink-swell potential. Hardpan layers tend to form at horizons where there is a significant physical or chemical change in the subsoil, often between the A and B or B and C horizons. Hardpans related to artificial compaction tend to form at relatively shallow depth where mechanical stress is not effectively dissipated by the overlying soil column. Hardpans also commonly form at the base of the plow zone where a change in the soil porosity and permeability may cause perching of water and subsequent physical and chemical changes result in the formation of a hardpan. The Project potentially crosses 242.37 acres of soil characterized as having a high potential for compaction. The soils potentially crossed by the proposed Project route that have a high potential for compaction are summarized in Appendix 7-B.

7.3.3 Revegetation Concerns

Multiple soil types found within the Project are described as having a low revegetation potential. Soils with low revegetation potential typically have high compaction and/or erosion potentials, have greater slopes, and are not classified as prime farmland. Low potential for revegetation within the Project is primarily attributed to soil conditions such as soil compaction. The revegetation potential was described as having the following soil characteristics: coarse textured soils (sandy loams and coarser) that are moderately well to excessively drained and soils with an average slope greater than or equal to nine percent. The following soils are those described as having a low revegetation potential:

7.3.3.1 Illinois

Menfro silt loam (79C2), Menfro silt loam (79D2), Elco silt loam (119C2), Elco silty clay loam (119C3), Elco silt loam (119D2), Elco silty clay loam (119D3), Camden silt loam (134C2), Rozetta silt loam (279C), Rozetta silt loam (279C2), Rozetta silty clay loam (279C3), Rozetta silt loam (279D), Rozetta silt loam (279D2), Rozetta silty clay loam (279D3), Fayette silt loam (280C2), Fayette silt loam (280D), Fayette silt loam (280D2), Fayette silty clay loam (280D3), Winfield silt loam (477C2), Winfield silty clay loam (477D3), Greenbush silt loam (675C2), Goss-Menfro complex (833G), Rock outcrop, and limestone-Lacrescent complex (837G).

7.3.3.2 Missouri

Menfro silt loam (60001), Menfro silt loam (60003), Menfro silt loam (60004), Menfro silt loam (60005), Urban land-Harvester complex (60025), Menfro silt loam (60171), Menfro silt loam (60176), Urban land-Harvester complex (60223) and Urban land-Harvester complex (60224).

The Project potentially crosses 132.82 acres of soil in Illinois and Missouri characterized as having a low revegetation potential; this is summarized in Table 7.3-1.

7.3.4 Potential for Introduction of Stones and Rocks into Topsoil

The majority of the Project is not located within soils considered "shallow to bedrock" (i.e., soils identified as containing bedrock at a depth of 5 feet or less from the surface). The Project crosses few areas containing soils with a depth to root restrictive layer of less than 5 feet. These soils include Rushville silt loam (16A), Denny silt loam (45A), Elco silt loam (119C2), Elco silty clay loam (119C3), Elco silt loam (119D2), Elco silty clay loam (119D3), and Goss-Menfro complex (833G) in Illinois and Blase silty clay loam (64016) in Missouri. Given that the anticipated depth to bedrock does not encompass the majority of the Project route, the removal of rock from the trench (both consolidated and unconsolidated), is not expected to be common. The extraction of rock from the trenchline increases the potential for introduction of rock into the topsoil layer, however this is not expected to occur frequently. The Project potentially crosses 29.43 acres of soil characterized as shallow to bedrock; this is summarized in Table 7.3-1.

7.3.5 Prime or Unique Farmland or Farmland of Statewide Importance

Prime farmland is a special classification of highly productive cropland that is recognized and described by the USDA-NRCS. Prime farmland soils are defined by the United States Army Corps of Engineers ("USACE") as those best utilized for growing food, feed, forage, fiber and oilseed crops (USDA-NRCS, 2005).

The Project potentially crosses 421.69 acres of soil characterized as Prime or Unique Farmland and 96.38 acres of soil characterized as Farmland of Statewide Importance. These soil characteristics are summarized in Table 7.3-1. Scott, Greene, and Jersey counties, Illinois and St. Charles and St. Louis Counties, Missouri collectively are comprised of 316,763.4 acres of Prime Farmland and 282,823.5 acres of Farmland of Statewide Importance. The Project potentially impacts less than 1% of the total acres of Prime Farmland and less than 1% of the total acres of Farmland of Statewide Importance in these counties.

Construction of the Project is considered temporary in nature and workspaces will be returned to agricultural land use upon completion of construction. Additionally, Spire will minimize temporary impacts to this land classification through the use the FERC Plan and the project-specific AIMA for Illinois. In order to avoid and minimize affects to topsoil, Spire proposes to perform topsoil segregation in active croplands across the entire right-of-way and associated ATWS. Implementation of proper topsoil segregation will help ensure post-construction revegetation success, thereby minimizing loss of crop productivity and the potential for long-term erosion problems. In order to minimize compaction, Spire will limit traffic on off-road areas to only that required to accomplish construction activities. Following completion of construction, areas of heavy compaction will be tilled as necessary when soil moisture conditions are suitable. As described in FERC's Plan, a minimum of 12 inches of topsoil will be segregated in deep soils and the entire topsoil layer, where possible, will be segregated in soils with less than 12 inches of topsoil. It is anticipated that Spire will encounter greater than 12 inches of topsoil in Illinois, which will be determined during construction by a qualified soil scientist. The topsoil and subsoil will be temporarily stockpiled in separate windrows on the construction right-of-way. Additional workspace for topsoil segregation may be requested as necessary. Refer to Resource Report 1 for additional information regarding special construction procedures in active croplands.

Spire will complete work in accordance with the FERC's Plan and the AIMA for the portion of the Project in Illinois. Spire is proposing five feet of cover in agricultural lands in both Illinois and Missouri which would allow sufficient depth for landowners to continue agricultural practices. In addition, Spire will coordinate with landowners and local agencies, as appropriate, to identify agricultural drainage systems. Spire will repair drain tile systems damaged as a result of the construction of the Project. Spire proposes to refer to the FERCs' Plan to avoid or minimize interference with drain tile and irrigation systems.

A majority of the soils located within aboveground facilities are classified as prime farmland. A total of 1.22 acres of prime farmland will be permanently converted to developed uses following completion of the aboveground facilities. Spire will compensate landowners for the loss of land permanently out of production for agricultural uses.

Agricultural and developed lands (which includes residential lands) crossed by the Project are included in Tables 8.1-1 and 8.1-2 in Resource Report 8.

7.3.6 Hydric Soils

The proposed Project will cross areas of hydric soils. The Project potentially crosses a total of 154.70 acres of soils classified as predominantly hydric or hydric soils. Due to extended periods of saturation, hydric soils can be susceptible to compaction and rutting. Grading to restore the original contour as well as repair of rutting areas will be completed prior to revegetation. Additionally, Spire has routed the Project to avoid and minimize impacts to wetlands where possible. In areas where the Project crosses wetlands, Spire intends to reduce its right-of-way width to 75 feet within wetlands where possible. Timber mats will be used to minimize rutting and compaction within saturated wetlands.

7.4 Consultations

7.4.1 Illinois

Spire is consulting with the appropriate agencies regarding potential impacts to soils crossed by the Project. Spire submitted an information request with preliminary Project information to the IDOA in August 2016. Prior to this, Spire met with the IDOA in June 2016 to introduce the Project and discuss development of the AIMA. A draft AIMA was submitted to the IDOA in September 2016, and Spire is coordinating with the agency to finalize this agreement. An executed agreement will be included as Appendix 7-C in the FERC application.

Spire requested information from the Scott, Greene and Jersey County Soil and Water Conservation District ("SWCDs") in September 2016, regarding recommendations for seed mixes, seeding dates, and restoration and/or seeding plans. Each county indicated that the USDA-NRCS technical guide can be utilized for suggested seed mixes. Spire will also coordinate with the landowners to determine any particular seeding plans recommended by the landowner or any required restoration required by any applicable conservation easements crossed by the Project (Behymer, 2016). It is anticipated that the Project may cross various conservation easements. The USDA Farm Service Agency in Illinois confirmed that 17 lands held in the Conservation Reserve Program will be crossed by the

24-inch pipeline (Diebal, 2016). Further discussion regarding these easements is discussed in Resource Report 8. Agency consultations are provided in Resource Report 1, Appendix 1-C.

No earth disturbance will occur on public lands in Illinois. Therefore, consultations with government land management agencies related to restoration and seeding requirements are not required.

7.4.2 Missouri

Spire requested information from the Missouri USDA-NRCS regarding recommendations for seed mixes, seeding dates, and restoration and/or seeding plans. The Missouri USDA-NRCS indicated the NRCS technical guide can be utilized for suggested seed mixes. Spire will also coordinate with the landowners in Missouri to determine any particular seeding plans recommended by the landowner or any required restoration required by any applicable conservation easements crossed by the Project

The 24-inch pipeline will cross one property owned by the United States Army Corps of Engineers ("USACE") St. Louis District on the south side of the Mississippi River which will require a right-of-easement from the USACE. The property is jointly managed with the Missouri Department of Conservation ("MDOC"). No earth disturbance on this property is anticipated. Spire will coordinate with the USACE and MDOC throughout the easement process.

7.5 Mitigation

Techniques to be used to mitigate potential impacts to soil associated with the Project will be described in detail in the Project's pending E&SC Plan ("E&SCP"). The E&SCP will be consistent with permit requirements and/or guidance provided by applicable permitting agencies. Spire will refer to the USDA-NRCS guidelines for Critical Area Planting for seed mixes and planting methods appropriate for the establishment of permanent vegetation on non-cropland sites that have or are expected to have high erosion rates or other conditions that prevent the establishment of vegetation with normal practices.

7.5.1 Soil Erosion

Spire will detail various techniques to control soil erosion in the E&SCP. Spire intends to implement FERC's Plan and Procedures as a minimum standard during construction. Where deviations from the Plan and Procedures are necessary for site-specific reasons, these locations are identified in Resource Report 1, Appendix 1-F. Spire will implement the following:

- An Environmental Inspector will monitor all phases of Project construction to ensure measures detailed in the E&SCP will be followed.
- Construction staff will undergo environmental training for techniques detailed in the E&SCP.

7.5.2 Soil Compaction

During construction, there is the potential for increased runoff of stormwater as a result of compacted soils from construction vehicles and staging of materials. To the extent practicable, Spire will avoid construction during periods of heavy rainfall and snow melt. Grading to restore the approximate original contour as well as repair of

rutted areas will be completed prior to final revegetation, seeding and mulching. Agricultural or residential locations found to be subjected to compaction will be decompacted with deep tillage by devices such as a deep-shank subsoiler, a heavy-duty ripping chisel or ripping chisel-plow, Paraplow®, Paratill®, or other landowner-specified techniques. Subsoils being decompacted will typically be ripped to a depth of 18 to 22 inches. Large stones unearthed during the decompaction process will be removed from the area prior to replacing topsoil. Care will be taken to not mix topsoil and subsoil during decompaction.

7.5.3 Introduction of Rock into Topsoil

As discussed in Spire's AIMA, the following rock removal procedures only pertain to rocks found in the uppermost 42 inches of soil, the common freeze zone in Illinois. Before replacing any topsoil, all rocks greater than 3 inches in any dimension will be removed from the surface of all exposed subsoil and from all subsoil that is replaced back in the trench. The size, density and distribution of rock on the right-of-way shall be similar to adjacent areas not disturbed by construction. As the topsoil is replaced, all rocks greater than 3 inches in any dimension will be removed from the topsoil until conditions on the right-of-way are similar compared to the adjacent off right-of-way are achieved. If trenching, blasting, or boring operations are required through rocky terrain, suitable precautions will be taken to minimize the potential for oversized rocks to become interspersed with adjacent soil material. Rocks and soil containing rocks removed from the subsoil areas, topsoil, or from any excavations, will be hauled off the landowner's premises or disposed of on the Landowner's premises at a location that is mutually acceptable to the landowner and Spire. Haul off and/or disposal locations cannot conflict with Spire's FERC-Certificated workspace allowance.

7.5.4 Post-Construction Revegetation

Successful restoration and revegetation of the Project's workspaces are important for maintaining productivity and protecting the underlying soil from potential damage. Fertility and erosion are generally the two main factors that would limit the re-growth of vegetation, but these can be mitigated through the application of fertilizers and/or seeding nets. Spire will apply soil amendments in areas with poor to moderate revegetation potential in order to create a favorable environment for the re-establishment of vegetation. Additionally, Spire will use the recommendations of the NRCS and the FERC Plan for seed mixtures and soil amendments to be used during the restoration of the Project's construction workspaces. In most upland locations, excluding actively cultivated cropland, an herbaceous vegetative cover will be reestablished by spreading a grass seed and hydro/straw-mulch mixture over the disturbed surface or as specified by landowners or permitting agencies. Spire is in the process of determining the appropriate seed mix for the Project area and this will be provided in the FERC application. Topsoil will be segregated, where required, to optimize revegetation potential of areas disturbed by construction activities.

To minimize the potential for the introduction of noxious weed and invasive species seeds Spire has prepared a Noxious Weeds/Invasive Plant Control Mitigation Plan, included in Resource Report 3, Appendix 3-A. Implementation of this plan will minimize adverse effects from noxious and invasive plant species.

7.5.5 Contaminated Soils

Areas of potential contaminated soils are identified in Resource Report 8. It is not likely that the Project will cross areas of contamination. However, if contaminated or suspect soils are identified during trenching operations, the applicable agencies will be notified and Spire will adhere to the Unanticipated Discovery of Contaminants Plan in Resource Report 8, Appendix 8-E. Work in this area will stop until the type and extent of contamination is determined.

7.6 References

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APPENDIX 7-A

Soils Mapping

Under Separate Cover

APPENDIX 7-B

Soils by Milepost and Soil Descriptions

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
24-Inch Pipeline													
Scott County, Illinois													
0.00	0.08	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.08	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
0.08	0.12	280D3	Fayette	95	0.05	N	N	N	N	N	Y	N	N
0.12	0.24	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.11	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
0.24	0.38	257A	Clarksdale	90	0.14	N	N	Y	N	N	N	N	N
0.38	0.46	43A	Ipava, Virden, Sable, Denny	85, 90, 85, 95	0.08	Y	N, Y, N, Y	Y, N, N, Y	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, Y
0.46	0.69	50A	Virden	90	0.24	N	Y	N	N	N	N	N	N
0.69	0.79	43A	Ipava, Virden, Sable, Denny	85, 90, 85, 95	0.09	Y	N, Y, N, Y	Y, N, N, Y	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, Y
0.79	0.80	50A	Virden	90	0.02	N	Y	N	N	N	N	N	N
0.80	0.92	43A	Ipava, Virden, Sable, Denny	85, 90, 85, 95	0.11	Y	N, Y, N, Y	Y, N, N, Y	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, Y
0.92	1.01	257A	Rozetta	94	0.10	N	N	Y	N	N	N	N	N
1.01	1.19	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.18	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
1.19	1.21	279C3	Rozetta	94	0.02	N	N	N	Y	N	Y	N	N
1.21	1.23	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
1.23	1.26	279C3	Rozetta	94	0.03	N	N	N	Y	N	Y	N	N
1.26	1.29	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.03	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
1.29	1.35	279C3	Rozetta	94	0.06	N	N	N	Y	N	Y	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
1.35	1.38	17A	Keomah	90	0.02	N	N	Y	N	N	N	N	N
1.38	1.41	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.03	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
1.41	1.46	279C3	Rozetta	94	0.04	N	N	N	Y	N	Y	N	N
1.46	1.58	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.12	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
1.58	1.79	43A	Ipava, Virden, Sable, Denny	85, 90, 85, 95	0.21	Y	N, Y, N, Y	Y, N, N, Y	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, Y
1.79	1.89	50A	Virden	90	0.10	N	Y	N	N	N	N	N	N
1.89	2.15	17A	Keomah	90	0.27	N	N	Y	N	N	N	N	N
2.15	2.19	119D3	Elco	95	0.04	N	N	N	Y	N	Y	N	Y
2.19	2.34	17A	Keomah	90	0.15	N	N	Y	N	N	N	N	N
2.34	2.51	280D3	Fayette	95	0.17	N	N	N	N	N	Y	N	N
2.51	2.56	8E2	Hickory	90	0.04	N	N	N	N	N	N	N	N
2.56	2.62	3078A	Arenzville	95	0.07	N	N	N	N	N	N	N	N
2.62	2.75	8F	Hickory, Ava	89, 90	0.12	N	N, N	N, N	N, N	N, N/A	N, N	N, N	N, Y
2.75	2.82	280D2	Fayette	95	0.07	N	N	N	N	N	Y	N	N
2.82	2.93	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.11	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
2.93	2.96	17A	Keomah	90	0.03	N	N	Y	N	N	N	N	N
2.96	3.00	119D3	Elco	95	0.04	N	N	N	Y	N	Y	N	Y
3.00	3.18	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.18	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
3.18	3.28	280C2	Fayette	95	0.10	N	N	N	N	N	Y	N	N
3.28	3.33	8E2	Hickory	90	0.04	N	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
3.33	3.38	3333A	Wakeland	90	0.06	N	N	Y	N	N	N	N	N
3.38	3.46	8F	Hickory, Ava	89, 90	0.07	N	N, N	N, N	N, N	N, N/A	N, N	N, N	N, Y
3.46	3.49	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.03	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
3.49	3.51	8F	Hickory, Ava	89, 90	0.02	N	N	N	N	N	N	N	N
Greene County, Illinois													
3.51	3.55	8F	Hickory, Ava	89, 90	0.04	N	N	N, N	N, N	N, N	N, N/A	N, N	N, N
3.55	3.57	279D2	Rozetta	94	0.02	N	N	N	N	N	Y	N	N
3.57	3.64	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.06	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
3.64	3.70	279D2	Rozetta	94	0.06	N	N	N	N	N	Y	N	N
3.70	3.75	8F	Hickory, Ava	89, 90	0.05	N	N	N, N	N, N	N, N	N, N/A	N, N	N, N
3.75	3.78	279D2	Rozetta	94	0.03	N	N	N	N	N	Y	N	N
3.78	3.82	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.04	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
3.82	3.89	8F2	Hickory	90	0.07	N	N	N	N	N	N	N	N
3.89	3.92	242A	Kendall	90	0.03	N	N	Y	N	N	N	N	N
3.92	3.97	3451A	Lawson	92	0.06	N	N	N	N	N	N	N	N
3.97	4.08	8F	Hickory, Ava	89, 90	0.11	N	N	N, N	N, N	N, N	N, N/A	N, N	N, N
4.08	4.09	280B	Fayette	97	0.01	Y	N	N	N	N	N	N	N
4.09	4.13	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.04	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
4.13	4.19	279D2	Rozetta	94	0.06	N	N	N	N	N	Y	N	N
4.19	4.28	8F	Hickory, Ava	89, 90	0.08	N	N	N, N	N, N	N, N	N, N/A	N, N	N, N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
4.28	4.31	279D2	Rozetta	94	0.04	N	N	N	N	N	Y	N	N
4.31	4.47	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.16	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
4.47	4.48	279D2	Rozetta	94	0.01	N	N	N	N	N	Y	N	N
4.48	4.56	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.07	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
4.56	4.58	68A	Sable	85	0.02	N	N	N	N	N	N	N	N
4.58	4.58	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.00	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
4.58	4.73	51A	Muscatune	90	0.15	Y	N	N	N	N	N	N	N
4.73	4.79	68A	Sable	85	0.06	N	N	N	N	N	N	N	N
4.79	4.88	51A	Muscatune	90	0.09	Y	N	N	N	N	N	N	N
4.88	4.90	675B	Greenbush	95	0.02	Y	N	N	N	N	N	N	N
4.90	4.92	675C2	Greenbush	91	0.02	N	N	N	N	N	Y	N	N
4.92	4.96	675B	Greenbush	95	0.04	Y	N	N	N	N	N	N	N
4.96	4.99	675C2	Greenbush	91	0.03	N	N	N	N	N	Y	N	N
4.99	5.01	3451A	Lawson	92	0.02	N	N	N	N	N	N	N	N
5.01	5.04	675C2	Greenbush	91	0.03	N	N	N	N	N	Y	N	N
5.04	5.07	61A	Atterberry	98	0.03	N	N	Y	N	N	N	N	N
5.07	5.12	675C2	Greenbush	91	0.05	N	N	N	N	N	Y	N	N
5.12	5.15	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.03	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
5.15	5.30	61A	Atterberry	98	0.15	N	N	Y	N	N	N	N	N
5.30	5.46	51A	Muscatune	90	0.16	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
5.46	5.52	675C2	Greenbush	91	0.06	N	N	N	N	N	Y	N	N
5.52	5.67	279D2	Rozetta	94	0.14	N	N	N	N	N	Y	N	N
5.67	5.70	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.03	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
5.70	5.81	279D2	Rozetta	94	0.11	N	N	N	N	N	Y	N	N
5.81	5.93	61A	Atterberry	98	0.12	N	N	Y	N	N	N	N	N
5.93	5.95	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
5.95	5.97	61A	Atterberry	98	0.02	N	N	Y	N	N	N	N	N
5.97	6.02	279C2	Rozetta, Keomah	94, 90	0.05	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
6.02	6.09	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.07	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
6.09	6.12	279C2	Rozetta, Keomah	94, 90	0.02	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
6.12	6.25	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.13	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
6.25	6.35	279D2	Rozetta	94	0.11	N	N	N	N	N	Y	N	N
6.35	6.39	8D2	Hickory	90	0.04	N	N	N	N	N	N	N	N
6.39	6.46	3451A	Lawson	92	0.07	N	N	N	N	N	N	N	N
6.46	6.50	8F2	Hickory	90	0.03	N	N	N	N	N	N	N	N
6.50	6.57	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.07	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
6.57	6.61	279D2	Rozetta	94	0.04	N	N	N	N	N	Y	N	N
6.61	6.64	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.03	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
6.64	6.66	279D2	Rozetta	94	0.02	N	N	N	N	N	Y	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
6.66	6.68	8F	Hickory, Ava	89, 90	0.02	N	N	N, N	N, N	N, N	N, N/A	N, N	N, N
6.68	6.74	279D2	Rozetta	94	0.06	N	N	N	N	N	Y	N	N
6.74	6.84	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.10	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
6.84	6.92	61A	Atterberry	98	0.07	N	N	Y	N	N	N	N	N
6.92	6.93	279C2	Rozetta, Keomah	94, 90	0.01	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
6.93	7.01	61A	Atterberry	98	0.08	N	N	Y	N	N	N	N	N
7.01	7.40	68A	Sable	85	0.39	N	N	N	N	N	N	N	N
7.40	7.49	47A	Virden	90	0.10	N	Y	N	N	N	N	N	N
7.49	7.54	51A	Muscatune	90	0.05	Y	N	N	N	N	N	N	N
7.54	7.68	47A	Virden	90	0.14	N	Y	N	N	N	N	N	N
7.68	7.80	51A	Muscatune	90	0.12	Y	N	N	N	N	N	N	N
7.80	7.90	47A	Virden	90	0.10	N	Y	N	N	N	N	N	N
7.90	7.99	51A	Muscatune	90	0.09	Y	N	N	N	N	N	N	N
7.99	8.07	675B	Greenbush	95	0.09	Y	N	N	N	N	N	N	N
8.07	8.17	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.10	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
8.17	8.34	675B	Greenbush	95	0.16	Y	N	N	N	N	N	N	N
8.34	8.42	51A	Muscatune	90	0.08	Y	N	N	N	N	N	N	N
8.42	8.52	675B	Greenbush	95	0.10	Y	N	N	N	N	N	N	N
8.52	8.66	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.14	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
8.66	8.68	675B	Greenbush	95	0.02	Y	N	N	N	N	N	N	N
8.68	8.71	279C2	Rozetta, Keomah	94, 90	0.03	N,	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
8.71	8.74	675B	Greenbush	95	0.03	Y	N	N	N	N	N	N	N
8.74	8.78	279C2	Rozetta, Keomah	94, 90	0.03	N,	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
8.78	8.80	279D2	Rozetta	94	0.02	N	N	N	N	N	Y	N	N
8.80	8.81	279C2	Rozetta, Keomah	94, 90	0.01	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
8.81	8.85	279D2	Rozetta	94	0.04	N	N	N	N	N	Y	N	N
8.85	8.87	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
8.87	8.92	17A	Keomah	90	0.05	N	N	Y	N	N	N	N	N
8.92	8.96	279C2	Rozetta, Keomah	94, 90	0.04	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
8.96	9.05	51A	Muscatune	90	0.09	Y	N	N	N	N	N	N	N
9.05	9.09	47A	Virden	90	0.04	N	Y	N	N	N	N	N	N
9.09	9.19	51A	Muscatune	90	0.10	Y	N	N	N	N	N	N	N
9.19	9.25	47A	Virden	90	0.06	N	Y	N	N	N	N	N	N
9.25	9.27	51A	Muscatune	90	0.02	Y	N	N	N	N	N	N	N
9.27	9.42	68A	Sable	85	0.15	N	N	N	N	N	N	N	N
9.42	9.58	51A	Muscatune	90	0.15	Y	N	N	N	N	N	N	N
9.58	9.78	51B	Muscatune	95	0.21	Y	N	N	N	N	N	N	N
9.78	9.85	86C2	Osco	90	0.07	N	N	N	N	N	N	N	N
9.85	9.86	675C2	Greenbush	91	0.01	N	N	N	N	N	Y	N	N
9.86	9.90	86C2	Osco	90	0.04	N	N	N	N	N	N	N	N
9.90	9.94	675C2	Greenbush	91	0.04	N	N	N	N	N	Y	N	N
9.94	9.99	86B	Osco	90	0.05	Y	N	N	N	N	N	N	N
9.99	10.02	675C2	Greenbush	91	0.03	N	N	N	N	N	Y	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
10.02	10.04	675B	Greenbush	95	0.02	Y	N	N	N	N	N	N	N
10.04	10.21	675C2	Greenbush	91	0.17	N	N	N	N	N	Y	N	N
10.21	10.32	3074A	Radford	90	0.11	N	N	Y	N	N	N	N	N
10.32	10.35	280C2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
10.35	10.39	675B	Greenbush	95	0.04	Y	N	N	N	N	N	N	N
10.39	10.52	61A	Atterberry	98	0.13	N	N	Y	N	N	N	N	N
10.52	10.58	51B	Muscatune	95	0.06	Y	N	N	N	N	N	N	N
10.58	10.65	86C2	Osco	90	0.08	N	N	N	N	N	N	N	N
10.65	10.78	675C2	Greenbush	91	0.13	N	N	N	N	N	Y	N	N
10.78	10.81	86C2	Osco	90	0.03	N	N	N	N	N	N	N	N
10.81	10.92	51B	Muscatune	95	0.10	Y	N	N	N	N	N	N	N
10.92	10.98	51A	Muscatune	90	0.06	Y	N	N	N	N	N	N	N
10.98	11.02	51B	Muscatune	95	0.04	Y	N	N	N	N	N	N	N
11.02	11.06	51A	Muscatune	90	0.05	Y	N	N	N	N	N	N	N
11.06	11.09	51B	Muscatune	95	0.02	Y	N	N	N	N	N	N	N
11.09	11.15	86C2	Osco	90	0.07	N	N	N	N	N	N	N	N
11.15	11.30	51B	Muscatune	95	0.15	Y	N	N	N	N	N	N	N
11.30	11.59	47A	Virden	90	0.29	N	Y	N	N	N	N	N	N
11.59	11.63	68A	Sable	85	0.04	N	N	N	N	N	N	N	N
11.63	11.70	47A	Virden	90	0.07	N	Y	N	N	N	N	N	N
11.70	11.80	68A	Sable	85	0.11	N	N	N	N	N	N	N	N
11.80	12.08	51A	Muscatune	90	0.27	Y	N	N	N	N	N	N	N
12.08	12.19	68A	Sable	85	0.12	N	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
12.19	12.21	51B	Muscatune	95	0.02	Y	N	N	N	N	N	N	N
12.21	12.31	675B	Greenbush	95	0.10	Y	N	N	N	N	N	N	N
12.31	12.36	51B	Muscatune	95	0.05	Y	N	N	N	N	N	N	N
12.36	12.38	675B	Greenbush	95	0.02	Y	N	N	N	N	N	N	N
12.38	12.50	675C2	Greenbush	91	0.12	N	N	N	N	N	Y	N	N
12.50	12.56	51B	Muscatune	95	0.06	Y	N	N	N	N	N	N	N
12.56	12.59	675C2	Greenbush	91	0.03	N	N	N	N	N	Y	N	N
12.59	12.61	280D	Fayette	92	0.02	N	N	N	N	N	Y	N	N
12.61	12.63	675C2	Greenbush	91	0.02	N	N	N	N	N	Y	N	N
12.63	12.67	675B	Greenbush	95	0.04	Y	N	N	N	N	N	N	N
12.67	12.70	47A	Virden	90	0.02	N	Y	N	N	N	N	N	N
12.70	12.77	675B	Greenbush	95	0.07	Y	N	N	N	N	N	N	N
12.77	12.81	47A	Virden	90	0.04	N	Y	N	N	N	N	N	N
12.81	12.95	675B	Greenbush	95	0.15	Y	N	N	N	N	N	N	N
12.95	13.09	280B	Fayette	97	0.13	Y	N	N	N	N	N	N	N
13.09	13.17	280D	Fayette	92	0.09	N	N	N	N	N	Y	N	N
13.17	13.22	3451A	Lawson	92	0.05	N	N	N	N	N	N	N	N
13.22	13.24	8F2	Hickory	90	0.02	N	N	N	N	N	N	N	N
13.24	13.26	280D2	Fayette	95	0.02	N	N	N	N	N	Y	N	N
13.26	13.28	280B	Fayette	97	0.02	Y	N	N	N	N	N	N	N
13.28	13.35	8F2	Hickory	90	0.07	N	N	N	N	N	N	N	N
13.35	13.43	280B	Fayette	97	0.08	Y	N	N	N	N	N	N	N
13.43	13.49	280D2	Fayette	95	0.06	N	N	N	N	N	Y	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
13.49	13.51	280B	Fayette	97	0.02	Y	N	N	N	N	N	N	N
13.51	13.59	280D2	Fayette	95	0.08	N	N	N	N	N	Y	N	N
13.59	13.64	280B	Fayette	97	0.05	Y	N	N	N	N	N	N	N
13.64	13.78	280D2	Fayette	95	0.14	N	N	N	N	N	Y	N	N
13.78	14.37	3451A	Lawson	92	0.59	N	N	N	N	N	N	N	N
14.37	14.43	675C2	Greenbush	91	0.06	N	N	N	N	N	Y	N	N
14.43	14.54	47A	Virden	90	0.11	N	Y	N	N	N	N	N	N
14.54	14.71	51B	Muscatune	95	0.17	Y	N	N	N	N	N	N	N
14.71	15.01	675C2	Greenbush	91	0.30	N	N	N	N	N	Y	N	N
15.01	15.11	675B	Greenbush	95	0.10	Y	N	N	N	N	N	N	N
15.11	15.24	675C2	Greenbush	91	0.14	N	N	N	N	N	Y	N	N
15.24	15.29	675B	Greenbush	95	0.05	Y	N	N	N	N	N	N	N
15.29	15.31	675C2	Greenbush	91	0.01	N	N	N	N	N	Y	N	N
15.31	15.41	675B	Greenbush	95	0.11	Y	N	N	N	N	N	N	N
15.41	15.44	61A	Atterberry	98	0.03	N	N	Y	N	N	N	N	N
15.44	15.53	257B	Clarksdale	90	0.09	Y	N	Y	N	N	N	N	N
15.53	15.60	61A	Atterberry	98	0.06	N	N	Y	N	N	N	N	N
15.60	15.65	257B	Clarksdale	90	0.05	Y	N	Y	N	N	N	N	N
15.65	15.68	280C2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
15.68	15.74	47A	Virden	90	0.07	N	Y	N	N	N	N	N	N
15.74	15.92	257B	Clarksdale	90	0.17	Y	N	Y	N	N	N	N	N
15.92	16.03	47A	Virden	90	0.11	N	Y	N	N	N	N	N	N
16.03	16.10	51A	Muscatune	90	0.06	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
16.10	16.18	51B	Muscatune	95	0.08	Y	N	N	N	N	N	N	N
16.18	16.26	51A	Muscatune	90	0.09	Y	N	N	N	N	N	N	N
16.26	16.29	47A	Virden	90	0.03	N	Y	N	N	N	N	N	N
16.29	16.36	61A	Atterberry	98	0.07	N	N	Y	N	N	N	N	N
16.36	16.38	47A	Virden	90	0.02	N	Y	N	N	N	N	N	N
16.38	16.51	257B	Clarksdale	90	0.13	Y	N	Y	N	N	N	N	N
16.51	16.58	47A	Virden	90	0.07	N	Y	N	N	N	N	N	N
16.58	16.61	257B	Clarksdale	90	0.03	Y	N	Y	N	N	N	N	N
16.61	16.67	47A	Virden	90	0.06	N	Y	N	N	N	N	N	N
16.67	16.82	257B	Clarksdale	90	0.14	Y	N	Y	N	N	N	N	N
16.82	16.87	280C2	Fayette	95	0.05	N	N	N	N	N	Y	N	N
16.87	16.89	280B	Fayette	97	0.02	Y	N	N	N	N	N	N	N
16.89	16.91	675C2	Greenbush	91	0.02	N	N	N	N	N	Y	N	N
16.91	16.93	280C2	Fayette	95	0.02	N	N	N	N	N	Y	N	N
16.93	17.02	257B	Clarksdale	90	0.09	Y	N	Y	N	N	N	N	N
17.02	17.07	675C2	Greenbush	91	0.04	N	N	N	N	N	Y	N	N
17.07	17.08	280D2	Fayette	95	0.01	N	N	N	N	N	Y	N	N
17.08	17.11	8F2	Hickory	90	0.03	N	N	N	N	N	N	N	N
17.11	17.14	280D2	Fayette	95	0.02	N	N	N	N	N	Y	N	N
17.14	17.16	280C2	Fayette	95	0.02	N	N	N	N	N	Y	N	N
17.16	17.17	280B	Fayette	97	0.01	Y	N	N	N	N	N	N	N
17.17	17.31	280C2	Fayette	95	0.13	N	N	N	N	N	Y	N	N
17.31	17.33	280B	Fayette	97	0.02	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
17.33	17.34	280D2	Fayette	95	0.02	N	N	N	N	N	Y	N	N
17.34	17.41	17A	Keomah	90	0.06	N	N	Y	N	N	N	N	N
17.41	17.45	280C2	Fayette	95	0.05	N	N	N	N	N	Y	N	N
17.45	17.47	280D2	Fayette	95	0.01	N	N	N	N	N	Y	N	N
17.47	17.48	280C2	Fayette	95	0.01	N	N	N	N	N	Y	N	N
17.48	17.48	280B	Fayette	97	0.00	Y	N	N	N	N	N	N	N
17.48	17.50	280C2	Fayette	95	0.01	N	N	N	N	N	Y	N	N
17.50	17.53	280B	Fayette	97	0.03	Y	N	N	N	N	N	N	N
17.53	17.54	280D2	Fayette	95	0.01	N	N	N	N	N	Y	N	N
17.54	17.57	280B	Fayette	97	0.03	Y	N	N	N	N	N	N	N
17.57	17.62	280D2	Fayette	95	0.05	N	N	N	N	N	Y	N	N
17.62	17.69	17A	Keomah	90	0.07	N	N	Y	N	N	N	N	N
17.69	17.70	51A	Muscatune	90	0.01	Y	N	N	N	N	N	N	N
17.70	17.73	280C2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
17.73	17.89	257B	Clarksdale	90	0.16	Y	N	Y	N	N	N	N	N
17.89	18.01	61A	Atterberry	98	0.12	N	N	Y	N	N	N	N	N
18.01	18.18	47A	Virden	90	0.17	N	Y	N	N	N	N	N	N
18.18	18.21	257B	Clarksdale	90	0.04	Y	N	Y	N	N	N	N	N
18.21	18.27	280B	Fayette	97	0.06	Y	N	N	N	N	N	N	N
18.27	18.35	280C2	Fayette	95	0.08	N	N	N	N	N	Y	N	N
18.35	18.43	280B	Fayette	97	0.08	Y	N	N	N	N	N	N	N
18.43	18.49	280C2	Fayette	95	0.05	N	N	N	N	N	Y	N	N
18.49	18.50	280B	Fayette	97	0.02	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
18.50	18.53	280C2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
18.53	18.63	280B	Fayette	97	0.10	Y	N	N	N	N	N	N	N
18.63	18.66	280C2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
18.66	18.69	280D	Fayette	92	0.03	N	N	N	N	N	Y	N	N
18.69	18.74	3451A	Lawson	92	0.05	N	N	N	N	N	N	N	N
18.74	18.77	280D	Fayette	92	0.04	N	N	N	N	N	Y	N	N
18.77	18.82	675B	Greenbush	95	0.05	Y	N	N	N	N	N	N	N
18.82	18.90	61A	Atterberry	98	0.08	N	N	Y	N	N	N	N	N
18.90	18.92	675B	Greenbush	95	0.03	Y	N	N	N	N	N	N	N
18.92	18.95	280C2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
18.95	19.02	675B	Greenbush	95	0.07	Y	N	N	N	N	N	N	N
19.02	19.05	675C2	Greenbush	91	0.02	N	N	N	N	N	Y	N	N
19.05	19.10	280D	Fayette	92	0.05	N	N	N	N	N	Y	N	N
19.10	19.16	675C2	Greenbush	91	0.07	N	N	N	N	N	Y	N	N
19.16	19.26	675B	Greenbush	95	0.10	Y	N	N	N	N	N	N	N
19.26	19.42	61A	Atterberry	98	0.16	N	N	Y	N	N	N	N	N
19.42	19.52	51A	Muscatune	90	0.10	Y	N	N	N	N	N	N	N
19.52	19.65	51B	Muscatune	95	0.13	Y	N	N	N	N	N	N	N
19.65	19.89	68A	Sable	85	0.23	N	N	N	N	N	N	N	N
19.89	20.09	51A	Muscatune	90	0.21	Y	N	N	N	N	N	N	N
20.09	20.12	51B	Muscatune	95	0.03	Y	N	N	N	N	N	N	N
20.12	20.19	675B	Greenbush	95	0.06	Y	N	N	N	N	N	N	N
20.19	20.23	51B	Muscatune	95	0.04	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
20.23	20.36	675B	Greenbush	95	0.13	Y	N	N	N	N	N	N	N
20.36	20.67	279C2	Rozetta, Keomah	94, 90	0.31	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
20.67	20.77	675B	Greenbush	95	0.10	Y	N	N	N	N	N	N	N
20.77	20.81	279D2	Rozetta	94	0.04	N	N	N	N	N	Y	N	N
20.81	20.84	8D2	Hickory	90	0.03	N	N	N	N	N	N	N	N
20.84	20.91	279D2	Rozetta	94	0.07	N	N	N	N	N	Y	N	N
20.91	20.93	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
20.93	20.96	61A	Atterberry	98	0.03	N	N	Y	N	N	N	N	N
20.96	20.98	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
20.98	21.01	279C2	Rozetta, Keomah	94, 90	0.03	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
21.01	21.07	675B	Greenbush	95	0.05	Y	N	N	N	N	N	N	N
21.07	21.10	47A	Virden	90	0.03	N	Y	N	N	N	N	N	N
21.10	21.31	675B	Greenbush	95	0.22	Y	N	N	N	N	N	N	N
21.31	21.47	68A	Sable	85	0.16	N	N	N	N	N	N	N	N
21.47	21.57	47A	Virden	90	0.10	N	Y	N	N	N	N	N	N
21.57	21.82	68A	Sable	85	0.25	N	N	N	N	N	N	N	N
21.82	21.92	51A	Muscatune	90	0.10	Y	N	N	N	N	N	N	N
21.92	22.03	47A	Virden	90	0.10	N	Y	N	N	N	N	N	N
22.03	22.19	68A	Sable	85	0.16	N	N	N	N	N	N	N	N
22.19	22.19	675C2	Greenbush	91	0.01	N	N	N	N	N	Y	N	N
22.19	22.33	68A	Sable	85	0.14	N	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
22.33	22.37	51A	Muscatune	90	0.04	Y	N	N	N	N	N	N	N
22.37	22.44	51B	Muscatune	95	0.06	Y	N	N	N	N	N	N	N
22.44	22.46	47A	Virden	90	0.02	N	Y	N	N	N	N	N	N
22.46	22.80	51A	Muscatune	90	0.35	Y	N	N	N	N	N	N	N
22.80	22.86	68A	Sable	85	0.05	N	N	N	N	N	N	N	N
22.86	23.02	61A	Atterberry	98	0.16	N	N	Y	N	N	N	N	N
23.02	23.02	280C2	Fayette	95	0.00	N	N	N	N	N	Y	N	N
23.02	23.07	280B	Fayette	97	0.05	Y	N	N	N	N	N	N	N
23.07	23.14	280C2	Fayette	95	0.07	N	N	N	N	N	Y	N	N
23.14	23.28	280B	Fayette	97	0.14	Y	N	N	N	N	N	N	N
23.28	23.53	17A	Keomah	90	0.25	N	N	Y	N	N	N	N	N
23.53	23.62	280B	Fayette	97	0.09	Y	N	N	N	N	N	N	N
23.62	23.73	280D2	Fayette	95	0.11	N	N	N	N	N	Y	N	N
23.73	23.86	280B	Fayette	97	0.13	Y	N	N	N	N	N	N	N
23.86	23.92	280D2	Fayette	95	0.06	N	N	N	N	N	Y	N	N
23.92	23.99	280B	Fayette	97	0.07	Y	N	N	N	N	N	N	N
23.99	24.01	280C2	Fayette	95	0.02	N	N	N	N	N	Y	N	N
24.01	24.06	280B	Fayette	97	0.05	Y	N	N	N	N	N	N	N
24.06	24.08	280C2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
24.08	24.12	280B	Fayette	97	0.04	Y	N	N	N	N	N	N	N
24.12	24.16	8D	Hickory, Ava	90, 90	0.04	N	N	N, N	N, N	N, N	N, N/A	N, N	N, N
24.16	24.36	280B	Fayette	97	0.20	Y	N	N	N	N	N	N	N
24.36	24.40	280D	Fayette	92	0.04	N	N	N	N	N	Y	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
24.40	24.41	280B	Fayette	97	0.01	Y	N	N	N	N	N	N	N
24.41	24.57	8D2	Hickory	90	0.16	N	N	N	N	N	N	N	N
24.57	24.64	3331A	Haymond	90	0.07	N	N	N	N	N	N	N	N
24.64	24.92	3451A	Lawson	92	0.28	N	N	N	N	N	N	N	N
24.92	24.95	3070A	Beaucoup	85	0.03	N	Y	N	N	N	N	N	N
24.95	24.96	W	Water	N/A	0.02	N/A	N/A	N/A	N/A	N/A	N/A	N	N/A
24.96	25.11	3070A	Beaucoup	85	0.14	N	Y	N	N	N	N	N	N
25.11	25.16	7148A	Proctor	95	0.05	Y	N	N	N	N	N	N	N
25.16	25.21	7102B	La Hogue	100	0.05	Y	N	Y	N	N	N	N	N
25.21	25.37	7148A	Proctor	95	0.16	Y	N	N	N	N	N	N	N
25.37	25.42	7102B	La Hogue	100	0.05	Y	N	Y	N	N	N	N	N
25.42	25.47	3451A	Lawson	92	0.05	N	N	N	N	N	N	N	N
25.47	25.53	7148A	Proctor	95	0.06	Y	N	N	N	N	N	N	N
25.53	25.60	3451A	Lawson	92	0.07	N	N	N	N	N	N	N	N
25.60	25.63	8D2	Hickory	90	0.03	N	N	N	N	N	N	N	N
25.63	25.66	280D2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
25.66	25.73	675B	Greenbush	95	0.07	Y	N	N	N	N	N	N	N
25.73	25.86	280D2	Fayette	95	0.14	N	N	N	N	N	Y	N	N
25.86	25.88	675C2	Greenbush	91	0.02	N	N	N	N	N	Y	N	N
25.88	26.14	257B	Clarksdale	90	0.25	Y	N	Y	N	N	N	N	N
26.14	26.19	51B	Muscatune	95	0.05	Y	N	N	N	N	N	N	N
26.19	26.25	257B	Clarksdale	90	0.06	Y	N	Y	N	N	N	N	N
26.25	26.29	675C2	Greenbush	91	0.04	N	N	N	N	N	Y	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
26.29	26.33	257B	Clarksdale	90	0.04	Y	N	Y	N	N	N	N	N
26.33	26.52	51B	Muscatune	95	0.19	Y	N	N	N	N	N	N	N
26.52	26.61	51A	Muscatune	90	0.09	Y	N	N	N	N	N	N	N
26.61	26.63	257B	Clarksdale	90	0.02	Y	N	Y	N	N	N	N	N
26.63	26.66	51A	Muscatune	90	0.03	Y	N	N	N	N	N	N	N
26.66	26.84	51B	Muscatune	95	0.18	Y	N	N	N	N	N	N	N
26.84	26.96	675B	Greenbush	95	0.12	Y	N	N	N	N	N	N	N
26.96	27.06	257B	Clarksdale	90	0.10	Y	N	Y	N	N	N	N	N
27.06	27.24	61A	Atterberry	98	0.18	N	N	Y	N	N	N	N	N
27.24	27.27	675B	Greenbush	95	0.03	Y	N	N	N	N	N	N	N
27.27	28.26	51A	Muscatune	90	0.99	N	N	N	N	N	N	N	N
28.26	28.48	68A	Sable	85	0.22	N	N	N	N	N	N	N	N
28.48	28.68	51A	Muscatune	90	0.19	Y	N	N	N	N	N	N	N
28.68	28.95	68A	Sable	85	0.28	N	N	N	N	N	N	N	N
28.95	28.98	51A	Muscatune	90	0.03	Y	N	N	N	N	N	N	N
Jersey County, Illinois													
28.98	29.04	51A	Muscatune	90	0.06	Y	N	N	N	N	N	N	N
29.04	29.08	675B	Greenbush	95	0.04	Y	N	N	N	N	N	N	N
29.08	29.20	51A	Muscatune	90	0.12	Y	N	N	N	N	N	N	N
29.20	29.23	675B	Greenbush	95	0.03	Y	N	N	N	N	N	N	N
29.23	29.37	51A	Muscatune	90	0.14	Y	N	N	N	N	N	N	N
29.37	29.71	68A	Sable	85	0.34	N	N	N	N	N	N	N	N
29.71	29.81	51A	Muscatune	90	0.10	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
29.81	30.07	68A	Sable	85	0.26	N	N	N	N	N	N	N	N
30.07	30.12	51A	Muscatune	90	0.05	Y	N	N	N	N	N	N	N
30.12	30.19	68A	Sable	85	0.07	N	N	N	N	N	N	N	N
30.19	30.28	51A	Muscatune	90	0.09	Y	N	N	N	N	N	N	N
30.28	30.38	675B	Greenbush	95	0.09	Y	N	N	N	N	N	N	N
30.38	30.40	279C3	Rozetta	94	0.02	N	N	N	Y	N	Y	N	N
30.40	30.52	675B	Greenbush	95	0.12	Y	N	N	N	N	N	N	N
30.52	30.54	279C3	Rozetta	94	0.02	N	N	N	Y	N	Y	N	N
30.54	30.60	675B	Greenbush	95	0.07	Y	N	N	N	N	N	N	N
30.60	30.77	51A	Muscatune	90	0.17	Y	N	N	N	N	N	N	N
30.77	30.78	675B	Greenbush	95	0.01	Y	N	N	N	N	N	N	N
30.78	30.88	86B	Osco	90	0.10	Y	N	N	N	N	N	N	N
30.88	30.97	51A	Muscatune	90	0.10	Y	N	N	N	N	N	N	N
30.97	31.00	675C2	Greenbush	91	0.03	N	N	N	N	N	Y	N	N
31.00	31.01	51A	Muscatune	90	0.01	Y	N	N	N	N	N	N	N
31.01	31.04	675C2	Greenbush	91	0.03	N	N	N	N	N	Y	N	N
31.04	31.13	675B	Greenbush	95	0.09	Y	N	N	N	N	N	N	N
31.13	31.17	675C2	Greenbush	91	0.03	N	N	N	N	N	Y	N	N
31.17	31.23	3451A	Lawson	92	0.06	N	N	N	N	N	N	N	N
31.23	31.26	279C3	Rozetta	94	0.03	N	N	N	Y	N	Y	N	N
31.26	31.27	675B	Greenbush	95	0.01	Y	N	N	N	N	N	N	N
31.27	31.30	675C2	Greenbush	91	0.04	N	N	N	N	N	Y	N	N
31.30	31.34	675B	Greenbush	95	0.03	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
31.34	31.40	61A	Atterberry	98	0.07	N	N	Y	N	N	N	N	N
31.40	31.46	675B	Greenbush	95	0.05	Y	N	N	N	N	N	N	N
31.46	31.52	675C2	Greenbush	91	0.06	N	N	N	N	N	Y	N	N
31.52	31.56	3451A	Lawson	92	0.04	N	N	N	N	N	N	N	N
31.56	31.64	675C2	Greenbush	91	0.08	N	N	N	N	N	Y	N	N
31.64	31.67	675B	Greenbush	95	0.03	Y	N	N	N	N	N	N	N
31.67	31.81	86B	Osco	90	0.14	Y	N	N	N	N	N	N	N
31.81	32.15	51A	Muscatune	90	0.34	Y	N	N	N	N	N	N	N
32.15	32.19	68A	Sable	85	0.04	N	N	N	N	N	N	N	N
32.19	32.21	51A	Muscatune	90	0.03	Y	N	N	N	N	N	N	N
32.21	32.28	68A	Sable	85	0.07	N	N	N	N	N	N	N	N
32.28	32.40	51A	Muscatune	90	0.12	Y	N	N	N	N	N	N	N
32.40	32.77	68A	Sable	85	0.37	N	N	N	N	N	N	N	N
32.77	32.91	51A	Muscatune	90	0.14	Y	N	N	N	N	N	N	N
32.91	33.12	68A	Sable	85	0.21	N	N	N	N	N	N	N	N
33.12	33.26	51A	Muscatune	90	0.14	Y	N	N	N	N	N	N	N
33.26	33.28	86B	Osco	90	0.02	Y	N	N	N	N	N	N	N
33.28	33.35	259C2	Assumption	90	0.07	N	N	N	N	N	N	N	Y
33.35	33.54	86B	Osco	90	0.18	Y	N	N	N	N	N	N	N
33.54	33.77	51A	Muscatune	90	0.23	Y	N	N	N	N	N	N	N
33.77	33.81	675B	Greenbush	95	0.05	Y	N	N	N	N	N	N	N
33.81	33.88	61A	Atterberry	98	0.06	N	N	Y	N	N	N	N	N
33.88	33.95	675B	Greenbush	95	0.08	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
33.95	34.11	61A	Atterberry	98	0.16	N	N	Y	N	N	N	N	N
34.11	34.15	675B	Greenbush	95	0.03	Y	N	N	N	N	N	N	N
34.15	34.18	61A	Atterberry	98	0.03	N	N	Y	N	N	N	N	N
34.18	34.24	675B	Greenbush	95	0.06	Y	N	N	N	N	N	N	N
34.24	34.29	119C2	Elco	97	0.04	N	N	N	N	N	Y	N	Y
34.29	34.52	675B	Greenbush	95	0.24	Y	N	N	N	N	N	N	N
34.52	34.59	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.07	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
34.59	34.64	119C2	Elco	97	0.04	N	N	N	N	N	Y	N	Y
34.64	34.69	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.06	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
34.69	34.77	119D2	Elco	94	0.07	N	N	N	N	N	Y	N	Y
34.77	34.82	3634A	Blyton	90	0.05	N	N	N	N	N	N	N	N
34.82	34.84	8D2	Hickory	90	0.02	N	N	N	N	N	N	N	N
34.84	34.93	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.08	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
34.93	34.98	119C3	Elco	95	0.05	N	N	N	Y	N	Y	N	Y
34.98	35.04	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.07	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
35.04	35.10	515C3	Bunkum	93	0.06	N	N	Y	Y	N	N	N	N
35.10	35.14	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.04	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
35.14	35.16	119D2	Elco	94	0.02	N	N	N	N	N	Y	N	Y
35.16	35.26	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.10	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
35.26	35.30	515B2	Bunkum	90	0.04	Y	N	Y	N	N	N	N	N
35.30	35.32	119C2	Elco	97	0.02	N	N	N	N	N	Y	N	Y
35.32	35.34	515B2	Bunkum	90	0.02	Y	N	Y	N	N	N	N	N
35.34	35.35	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.01	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
35.35	35.45	16A	Rushville	90	0.09	N	Y	N	N	N	N	N	Y
35.45	35.55	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.10	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
35.55	35.59	515C3	Bunkum	93	0.04	N	N	Y	Y	N	N	N	N
35.59	35.61	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
35.61	35.66	515C3	Bunkum	93	0.05	N	N	Y	Y	N	N	N	N
35.66	35.72	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.06	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
35.72	35.72	119D2	Elco	94	0.01	N	N	N	N	N	Y	N	Y
35.72	35.93	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.21	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
35.93	36.02	119D3	Elco	95	0.09	N	N	N	Y	N	Y	N	Y
36.02	36.09	3634A	Blyton	90	0.07	N	N	N	N	N	N	N	N
36.09	36.22	3333A	Wakeland	90	0.13	N	N	Y	N	N	N	N	N
36.22	36.35	3634A	Blyton	90	0.13	N	N	N	N	N	N	N	N
36.35	36.41	8G	Hickory	90	0.06	N	N	N	N	N	N	N	N
36.41	36.44	280C2	Fayette	95	0.03	N	N	N	N	N	Y	N	N
36.44	36.55	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.11	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
36.55	36.65	515B2	Bunkum	90	0.10	Y	N	Y	N	N	N	N	N
36.65	36.72	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.07	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
36.72	36.83	515B2	Bunkum	90	0.11	Y	N	Y	N	N	N	N	N
36.83	37.00	675B	Greenbush	95	0.17	Y	N	N	N	N	N	N	N
37.00	37.22	51A	Muscatune	90	0.22	Y	N	N	N	N	N	N	N
37.22	37.24	675B	Greenbush	95	0.02	Y	N	N	N	N	N	N	N
37.24	37.36	51A	Muscatune	90	0.12	Y	N	N	N	N	N	N	N
37.36	37.48	675B	Greenbush	95	0.13	Y	N	N	N	N	N	N	N
37.48	37.50	86B	Osco	90	0.02	Y	N	N	N	N	N	N	N
37.50	37.67	675B	Greenbush	95	0.16	Y	N	N	N	N	N	N	N
37.67	37.78	538B2	Emery	90	0.12	Y	N	Y	N	N	N	N	N
37.78	37.90	675B	Greenbush	95	0.12	Y	N	N	N	N	N	N	N
37.90	37.95	51A	Muscatune	90	0.04	Y	N	N	N	N	N	N	N
37.95	38.19	675B	Greenbush	95	0.24	Y	N	N	N	N	N	N	N
38.19	38.20	538C2	Emery	90	0.02	N	N	Y	N	N	N	N	N
38.20	38.22	675B	Greenbush	95	0.02	Y	N	N	N	N	N	N	N
38.22	38.31	61A	Atterberry	98	0.09	N	N	Y	N	N	N	N	N
38.31	38.39	675B	Greenbush	95	0.08	Y	N	N	N	N	N	N	N
38.39	38.47	515C3	Bunkum	93	0.08	N	N	Y	Y	N	N	N	N
38.47	38.53	675B	Greenbush	95	0.06	Y	N	N	N	N	N	N	N
38.53	38.58	61A	Atterberry	98	0.05	N	N	Y	N	N	N	N	N
38.58	38.65	675B	Greenbush	95	0.07	Y	N	N	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
38.65	38.78	61A	Atterberry	98	0.13	N	N	Y	N	N	N	N	N
38.78	38.86	68A	Sable	85	0.09	N	N	N	N	N	N	N	N
38.86	39.07	51A	Muscatune	90	0.21	Y	N	N	N	N	N	N	N
39.07	39.17	675B	Greenbush	95	0.10	Y	N	N	N	N	N	N	N
39.17	39.62	61A	Atterberry	98	0.45	N	N	Y	N	N	N	N	N
39.62	39.72	51A	Muscatune	90	0.10	Y	N	N	N	N	N	N	N
39.72	39.74	61A	Atterberry	98	0.02	N	N	Y	N	N	N	N	N
39.74	39.78	51A	Muscatune	90	0.04	Y	N	N	N	N	N	N	N
39.78	39.85	675B	Greenbush	95	0.07	Y	N	N	N	N	N	N	N
39.85	39.93	61A	Atterberry	98	0.08	N	N	Y	N	N	N	N	N
39.93	39.94	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.01	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
39.94	40.03	61A	Atterberry	98	0.09	N	N	Y	N	N	N	N	N
40.03	40.11	675B	Greenbush	95	0.08	Y	N	N	N	N	N	N	N
40.11	40.23	280D3	Fayette	95	0.12	N	N	N	N	N	Y	N	N
40.23	40.28	280B	Fayette	97	0.05	Y	N	N	N	N	N	N	N
40.28	40.36	280C2	Fayette	95	0.08	N	N	N	N	N	Y	N	N
40.36	40.39	280D3	Fayette	95	0.03	N	N	N	N	N	Y	N	N
40.39	40.47	280C2	Fayette	95	0.08	N	N	N	N	N	Y	N	N
40.47	40.53	280D3	Fayette	95	0.06	N	N	N	N	N	Y	N	N
40.53	40.73	280C2	Fayette	95	0.20	N	N	N	N	N	Y	N	N
40.73	40.86	279C2	Rozetta, Keomah	94, 90	0.13	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
40.86	40.91	280C2	Fayette	95	0.06	N	N	N	N	N	Y	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
40.91	40.96	279C2	Rozetta, Keomah	94, 90	0.05	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
40.96	40.98	280C2	Fayette	95	0.02	N	N	N	N	N	Y	N	N
40.98	41.10	279D3	Rozetta	94	0.12	N	N	N	Y	N	Y	N	N
41.10	41.13	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.03	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
41.13	41.21	279C2	Rozetta, Keomah	94, 90	0.08	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
41.21	41.23	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
41.23	41.23	279C2	Rozetta, Keomah	94, 90	0.01	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
41.23	41.27	279D3	Rozetta	94	0.03	N	N	N	Y	N	Y	N	N
41.27	41.38	279C2	Rozetta, Keomah	94, 90	0.12	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
41.38	41.40	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
41.40	41.44	279C2	Rozetta, Keomah	94, 90	0.03	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
41.44	41.45	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.02	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
41.45	41.51	279D2	Rozetta	94	0.06	N	N	N	N	N	Y	N	N
41.51	41.56	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.05	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
41.56	41.59	279C2	Rozetta, Keomah	94, 90	0.03	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
41.59	41.61	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.03	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
41.61	41.65	278A	Stronghurst	90	0.04	N	N	Y	N	N	N	N	N
41.65	41.70	279C2	Rozetta, Keomah	94, 90	0.05	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
41.70	41.84	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.14	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
41.84	41.88	61A	Atterberry	98	0.05	N	N	Y	N	N	N	N	N
41.88	41.92	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.04	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
41.92	41.93	279C2	Rozetta, Keomah	94, 90	0.01	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
41.93	41.96	477D3	Winfield	90	0.03	N	N	N	N	N	Y	N	N
41.96	41.99	279C2	Rozetta, Keomah	94, 90	0.02	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
41.99	42.02	477D3	Winfield	90	0.03	N	N	N	N	N	Y	N	N
42.02	42.06	279C2	Rozetta, Keomah	94, 90	0.04	N	N, N	Y, Y	N, N	N, N	Y, N	N, N	N, N
42.06	42.23	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.17	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
42.23	42.26	477C2	Winfield	95	0.03	N	N	N	N	N	Y	N	N
42.26	42.32	279B	Rozetta, Keomah, Clarksdale, Sable	90, 90, 90, 85	0.06	Y	N, N, N, N	Y, Y, Y, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N	N, N, N, N
42.32	42.38	278A	Stronghurst	90	0.06	N	N	Y	N	N	N	N	N
42.38	42.65	477B	Winfield	95	0.27	Y	N	N	N	N	N	N	N
42.65	42.70	477D3	Winfield	90	0.05	N	N	N	N	N	Y	N	N
42.70	42.73	477B	Winfield	95	0.03	Y	N	N	N	N	N	N	N
42.73	42.83	477C2	Winfield	95	0.10	N	N	N	N	N	Y	N	N
42.83	43.16	477B	Winfield	95	0.33	Y	N	N	N	N	N	N	N
43.16	43.17	477C2	Winfield	95	0.01	N	N	N	N	N	Y	N	N
43.17	43.43	477B	Winfield	95	0.26	Y	N	N	N	N	N	N	N
43.43	43.46	79C2	Menfro	85	0.03	N	N	N	N	N	Y	N	N
43.46	43.49	79B	Menfro	90	0.03	Y	N	N	N	N	N	N	N
43.49	43.53	79C2	Menfro	85	0.04	N	N	N	N	N	Y	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
43.53	43.56	79B	Menfro	90	0.03	Y	N	N	N	N	N	N	N
43.56	43.61	79C2	Menfro	85	0.05	N	N	N	N	N	Y	N	N
43.61	43.67	833G	Goss, Menfro	60, 30	0.06	N	N, N	N, N	N, N	N, N	Y, Y	N, N	Y, N
43.67	43.74	79C2	Menfro	85	0.07	N	N	N	N	N	Y	N	N
43.74	43.76	833G	Goss, Menfro	60, 30	0.02	N	N, N	N, N	N, N	N, N	Y, Y	N, N	Y, N
43.76	43.92	79C2	Menfro	85	0.16	N	N	N	N	N	Y	N	N
43.92	44.09	833G	Goss, Menfro	60, 30	0.17	N	N, N	N, N	N, N	N, N	Y, Y	N, N	Y, N
44.09	44.13	79D2	Menfro	90	0.04	N	N	N	N	N	Y	N	N
44.13	44.19	833G	Goss, Menfro	60, 30	0.06	N	N, N	N, N	N, N	N, N	Y, Y	N, N	Y, N
44.19	44.25	79D2	Menfro	90	0.06	N	N	N	N	N	Y	N	N
44.25	44.43	833G	Goss, Menfro	60, 30	0.18	N	N, N	N, N	N, N	N, N	Y, Y	N, N	Y, N
44.43	44.45	837G	Lacrescent	30	0.02	N	N	N	N	N	Y	N	N
44.45	44.58	3475A	Elsah	90	0.13	N	N	N	N	N	N	Y	N
44.58	44.84	W	Water	N/A	0.26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Charles County, Missouri													
44.84	45.14	99001	Water	N/A	0.31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45.14	45.38	66066	Carlow	90	0.24	N	Y	N	N	N	N	N	N
45.38	45.45	99001	Water	N/A	0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45.45	45.53	66066	Carlow	90	0.08	N	Y	N	N	N	N	N	N
45.53	45.59	66100	Portage	85	0.06	N	Y	Y	N	N	N	N	N
45.59	45.85	66066	Carlow	90	0.26	N	Y	N	N	N	N	N	N
45.85	46.66	66100	Portage	85	0.82	N	Y	Y	N	N	N	N	N
46.66	46.88	66066	Carlow	90	0.22	N	Y	N	N	N	N	N	N

spire

Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
46.88	46.99	66100	Portage	85	0.11	N	Y	Y	N	N	N	N	N
46.99	47.13	66066	Carlow	90	0.14	N	Y	N	N	N	N	N	N
47.13	47.19	64016	Blase	95	0.06	Y	N	Y	N	N	N	N	Y
47.19	47.21	64024	DeSioux	95	0.02	Y	N	N	N	N	N	N	N
47.21	47.31	64016	Blase	95	0.10	Y	N	Y	N	N	N	N	Y
47.31	47.39	64024	DeSioux	95	0.08	Y	N	N	N	N	N	N	N
47.39	47.41	64016	Blase	95	0.02	Y	N	Y	N	N	N	N	Y
47.41	47.50	64024	DeSioux	95	0.09	Y	N	N	N	N	N	N	N
47.50	47.55	66066	Carlow	90	0.04	N	Y	N	N	N	N	N	N
47.55	47.90	64024	DeSioux	95	0.35	Y	N	N	N	N	N	N	N
47.90	47.92	66066	Carlow	90	0.02	N	Y	N	N	N	N	N	N
47.92	47.98	64024	DeSioux	95	0.06	Y	N	N	N	N	N	N	N
47.98	48.02	66066	Carlow	90	0.04	N	Y	N	N	N	N	N	N
48.02	48.13	64016	Blase	95	0.11	Y	N	Y	N	N	N	N	Y
48.13	48.18	66066	Carlow	90	0.05	N	Y	N	N	N	N	N	N
48.18	48.36	64024	DeSioux	95	0.18	Y	N	N	N	N	N	N	N
48.36	48.45	66066	Carlow	90	0.09	N	Y	N	N	N	N	N	N
48.45	48.50	64016	Blase	95	0.05	Y	N	Y	N	N	N	N	Y
48.50	48.54	66100	Portage	85	0.04	N	Y	Y	N	N	N	N	N
48.54	48.64	64016	Blase	95	0.10	Y	N	Y	N	N	N	N	Y
48.64	48.69	66100	Portage	85	0.05	N	Y	Y	N	N	N	N	N
48.69	48.88	64016	Blase	95	0.19	Y	N	Y	N	N	N	N	Y
48.88	48.92	66100	Portage	85	0.03	N	Y	Y	N	N	N	N	N

spire

Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
48.92	48.99	64016	Blase	95	0.07	Y	N	Y	N	N	N	N	Y
48.99	49.29	64024	DeSioux	95	0.30	Y	N	N	N	N	N	N	N
49.29	49.36	64016	Blase	95	0.07	Y	N	Y	N	N	N	N	Y
49.36	49.41	64024	DeSioux	95	0.05	Y	N	N	N	N	N	N	N
49.41	49.67	64016	Blase	95	0.27	Y	N	Y	N	N	N	N	Y
49.67	49.82	64024	DeSioux	95	0.14	Y	N	N	N	N	N	N	N
49.82	51.27	66019	Lowmo	85	1.45	Y	N	N	N	N	N	N	N
51.27	51.34	66059	Peers	85	0.07	Y	N	Y	N	N	N	N	N
51.34	51.44	66019	Lowmo	85	0.11	Y	N	N	N	N	N	N	N
51.44	51.75	66059	Peers	85	0.30	Y	N	Y	N	N	N	N	N
51.75	51.98	66019	Lowmo	85	0.24	Y	N	N	N	N	N	N	N
51.98	52.30	66059	Peers	85	0.32	Y	N	Y	N	N	N	N	N
52.30	53.07	66110	Portage	85	0.77	N	Y	Y	N	N	N	N	N
53.07	53.46	66059	Peers	85	0.40	Y	N	Y	N	N	N	N	N
53.46	53.61	66019	Lowmo	85	0.14	Y	N	N	N	N	N	N	N
53.61	53.64	66059	Peers	85	0.03	Y	N	Y	N	N	N	N	N
53.64	54.04	66110	Portage	85	0.40	N	Y	Y	N	N	N	N	N
54.04	54.23	66019	Lowmo	85	0.20	Y	N	N	N	N	N	N	N
54.23	54.30	66110	Portage	85	0.07	N	Y	Y	N	N	N	N	N
54.30	54.33	66019	Lowmo	85	0.03	Y	N	N	N	N	N	N	N
54.33	54.50	66059	Peers	85	0.17	Y	N	Y	N	N	N	N	N
54.50	54.61	66110	Portage	85	0.12	N	Y	Y	N	N	N	N	N
54.61	54.64	13598	Booker	95	0.03	N	Y	N	N	N	N	N	N

spire

Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
54.64	55.11	66110	Portage	85	0.48	N	Y	Y	N	N	N	N	N
55.11	55.15	13598	Booker	95	0.04	N	Y	N	N	N	N	N	N
55.15	55.87	66019	Lowmo	85	0.72	Y	N	N	N	N	N	N	N
55.87	55.89	36023	Landes	90	0.02	Y	N	N	N	N	N	N	N
55.89	55.95	66019	Lowmo	85	0.05	Y	N	N	N	N	N	N	N
55.95	55.98	36023	Landes	90	0.04	Y	N	N	N	N	N	N	N
55.98	56.00	66059	Peers	85	0.02	Y	N	Y	N	N	N	N	N
56.00	56.03	66019	Lowmo	85	0.03	Y	N	N	N	N	N	N	N
56.03	56.13	66059	Peers	85	0.10	Y	N	Y	N	N	N	N	N
56.13	56.24	66019	Lowmo	85	0.11	Y	N	N	N	N	N	N	N
56.24	56.26	66059	Peers	85	0.02	Y	N	Y	N	N	N	N	N
56.26	56.28	66019	Lowmo	85	0.02	Y	N	N	N	N	N	N	N
56.28	56.32	66059	Peers	85	0.04	Y	N	Y	N	N	N	N	N
56.32	56.37	66019	Lowmo	85	0.05	Y	N	N	N	N	N	N	N
56.37	56.42	66059	Peers	85	0.05	Y	N	Y	N	N	N	N	N
56.42	56.44	66019	Lowmo	85	0.03	Y	N	N	N	N	N	N	N
56.44	56.47	66059	Peers	85	0.03	Y	N	Y	N	N	N	N	N
56.47	56.53	66019	Lowmo	85	0.06	Y	N	N	N	N	N	N	N
56.53	56.82	66059	Peers	85	0.29	Y	N	Y	N	N	N	N	N
56.82	56.85	66019	Lowmo	85	0.03	Y	N	N	N	N	N	N	N
56.85	56.95	66059	Peers	85	0.10	Y	N	Y	N	N	N	N	N
56.95	56.97	66019	Lowmo	85	0.02	Y	N	N	N	N	N	N	N
56.97	57.00	66059	Peers	85	0.03	Y	N	Y	N	N	N	N	N

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Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
57.00	57.05	66019	Lowmo	85	0.04	Y	N	N	N	N	N	N	N
57.05	57.06	66059	Peers	85	0.01	Y	N	Y	N	N	N	N	N
57.06	57.12	66012	Blake	85	0.06	N	Y	Y	N	N	N	N	N
57.12	57.18	99001	Water	N/A	0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
57.18	57.25	66126	Haynie, Treloar, Blake	45, 25, 20	0.07	N	Y, Y, Y	Y, N, N	N, Y, Y	N, N, N	N, N, N	N, N, N	N, Y, N
57.25	57.35	99001	Water	N/A	0.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Louis County, Missouri													
57.35	57.50	99001	Water	N/A	0.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
57.50	57.57	99000	Pits, quarry	N/A	0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
57.57	57.60	60005	Menfro	89	0.03	N	N	N	N	N	Y	N	N
57.60	57.67	99000	Pits, quarry		0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
57.67	57.69	60005	Menfro	89	0.02	N	N	N	N	N	Y	N	N
57.69	57.79	60171	Menfro	90	0.11	N	N	N	N	N	Y	N	N
57.79	57.88	99000	Pits, quarry	N/A	0.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
57.88	57.90	60171	Menfro	90	0.02	N	N	N	N	N	Y	N	N
57.90	57.94	60176	Menfro	85	0.04	N	N	N	Y	N	Y	N	N
57.94	57.95	60001	Menfro	100	0.00	N	N	N	N	N	Y	N	N
Line 880													
St. Louis County, Missouri													
0.00	0.11	60001	Menfro	100	0.11	N	N	N	N	N	Y	N	N
0.11	0.17	60003	Menfro	85	0.05	N	N	N	Y	N	Y	N	N
0.17	0.27	60001	Menfro	100	0.11	N	N	N	N	N	Y	N	N
0.27	0.30	60003	Menfro	85	0.03	N	N	N	Y	N	Y	N	N

spire

Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
0.30	0.33	60004	Menfro	90	0.03	N	N	N	N	N	Y	N	N
0.33	0.42	60003	Menfro	85	0.09	N	N	N	Y	N	Y	N	N
0.42	0.49	60001	Menfro	100	0.07	N	N	N	N	N	Y	N	N
0.49	0.57	60003	Menfro	85	0.08	N	N	N	Y	N	Y	N	N
0.57	0.66	66024	Wilbur	80	0.09	N	N	N	N	N	N	N	N
0.66	0.69	60003	Menfro	85	0.03	N	N	N	Y	N	Y	N	N
0.69	0.77	60165	Menfro	85	0.08	Y	N	N	N	N	N	N	N
0.77	0.83	60003	Menfro	85	0.06	N	N	N	Y	N	Y	N	N
0.83	1.02	60165	Menfro	85	0.19	Y	N	N	N	N	N	N	N
1.02	1.14	60004	Menfro	90	0.11	N	N	N	N	N	Y	N	N
1.14	1.67	60165	Menfro	85	0.53	Y	N	N	N	N	N	N	N
1.67	1.73	60004	Menfro	90	0.06	N	N	N	N	N	Y	N	N
1.73	1.84	60223	Harvester	25	0.11	N	N	N	Y	N	Y	N	N
1.84	2.07	60025	Harvester	40	0.23	N	N	N	N	N	Y	N	N
2.07	2.09	60223	Harvester	25	0.02	N	N	N	Y	N	Y	N	N
2.09	2.13	60004	Menfro	90	0.04	N	N	N	N	N	Y	N	N
2.13	2.40	60223	Harvester	25	0.28	N	N	N	Y	N	Y	N	N
2.40	2.44	60005	Menfro	89	0.03	N	N	N	N	N	Y	N	N
2.44	2.48	60223	Harvester	25	0.04	N	N	N	Y	N	Y	N	N
2.48	2.65	60025	Harvester	40	0.17	N	N	N	N	N	Y	N	N
2.65	2.99	60165	Menfro	85	0.34	Y	N	N	N	N	N	N	N
2.99	3.43	60025	Harvester	40	0.44	N	N	N	N	N	Y	N	N
3.43	3.48	66024	Wilbur	80	0.05	N	N	N	N	N	N	N	N

spire

Appendix 7-B. Soil Characteristics by Milepost ("MP") Segment for Each Soil Map Unit along the Proposed Pipeline Route (Continued)

MP Begin	MP End	Map Unit Symbol	Component Name	Component Percent	Crossing Length (miles)	Prime Farmland (Y/N)[1]	Hydric Soils (Y/N)[1]	Compaction Prone (Y/N)[2]	Highly Erodible		Revegetation Concerns (Y/N)[5]	Stony/ Rocky (Y/N)[6]	Shallow to Bedrock (Y/N)[7]
									Water (Y/N)[3]	Wind (Y/N)[4]			
3.48	3.52	60025	Harvester	40	0.04	N	N	N	N	N	Y	N	N
3.52	3.54	66024	Wilbur	80	0.02	N	N	N	N	N	N	N	N
3.54	3.86	60003	Menfro	85	0.32	N	N	N	Y	N	Y	N	N
3.86	4.29	60025	Harvester	40	0.43	N	N	N	N	N	Y	N	N
4.29	4.81	60224	Wilbur	80	0.53	N	N	N	N	N	N	N	N
4.81	5.03	60003	Menfro	85	0.21	N	N	N	Y	N	Y	N	N
5.03	5.21	60025	Harvester	40	0.19	N	N	N	N	N	Y	N	N
5.21	5.40	66047	Nevin	50	0.18	N	N	Y	N	N	N	N	N
5.40	5.80	66047	Nevin	50	0.40	N	N	Y	N	N	N	N	N
5.80	5.84	60025	Harvester	40	0.04	N	N	N	N	N	Y	N	N
5.84	5.97	66047	Nevin	50	0.13	N	N	Y	N	N	N	N	N
5.97	6.01	60189	Menfro	55	0.04	N	N	N	N	N	N	N	N
6.01	6.10	66047	Nevin	50	0.09	N	N	Y	N	N	N	N	N
6.10	6.48	60165	Menfro	85	0.38	Y	N	N	N	N	N	N	N
6.48	6.57	60003	Menfro	85	0.09	N	N	N	Y	N	Y	N	N
6.57	6.63	60165	Menfro	85	0.06	Y	N	N	N	N	N	N	N
6.63	6.75	60003	Menfro	85	0.12	N	N	N	Y	N	Y	N	N
6.75	6.80	60165	Menfro	85	0.05	Y	N	N	N	N	N	N	N
6.80	7.10	60003	Menfro	85	0.21	N	N	N	Y	N	Y	N	N
7.10	7.13	13598	Booker	95	0.04	N	Y	Y	N	N	N	N	N

Note:

[1] As designated by the Natural Resources Conservation Service.

[2] Includes soils that have clay loam or finer textures in somewhat poor, poor, and very poor drainage classes.

[3] Includes land in capability subclasses 4E through 8E and soils with an average slope greater than or equal to 9 percent.

[4] Includes soils with Wind Erodibility Group classification of one or two.

[5] Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively well drained and soils with an average slope greater than or equal to 9 percent.

[6] Includes soils that have a very gravelly, extremely gravelly, cobbly, stony, bouldery, flaggy, or channery modifier to the textural class.

[7] Includes soils that have bedrock within 60 inches of the soil surface.

Y=Yes; N=No.

Appendix 7-B Soil Descriptions

7-B.1 Illinois

Hickory silt loam, 10 to 18 percent slopes (8D)

The Hickory component makes up 90 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines, till plains. The parent material consists of loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Atlas soil, Marseilles soil and Radford soil are minor components.

The Ava component makes up 90 percent of the map unit. Slopes are two to five percent. This component is on convex ridges on loess covered till plains. The parent material consists of loess over mixed loess and drift over till. Depth to a root restrictive layer, fragipan, is 25 to 40 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 27 inches during January, February, March, April. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Frondorf soil and Rozetta soil are minor components.

Hickory silt loam, 10 to 18 percent slopes, eroded (8D2)

The Hickory component makes up 90 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines, till plains. The parent material consists of Illinois till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Marseilles soil, Rozetta soil, Wakeland soil and Ava soil are minor components.

Hickory silt loam, 18 to 25 percent slopes, eroded (8E2)

The Hickory component makes up 90 percent of the map unit. Slopes are 18 to 25 percent. This component is on ground moraines, till plains. The parent material consists of Illinois till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low.

This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Atlas soil, Marseilles soil, Wakeland soil and Rozetta soil are minor components.

Hickory silt loam, 18 to 35 percent slopes (8F)

The Hickory component makes up 89 percent of the map unit. Slopes are 18 to 35 percent. This component is on till plains, ground moraines. The parent material consists of loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Radford soil, Marseilles soil, Atlas soil, Fayette soil, and Frondorf soil are minor components.

The Ava component makes up 90 percent of the map unit. Slopes are 2 to 5 percent. This component is on convex ridges on loess covered till plains. The parent material consists of loess over mixed loess and drift over till. Depth to a root restrictive layer, fragipan, is 25 to 40 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 27 inches during January, February, March, April. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Wakeland soil is a minor component.

Hickory silt loam, 18 to 35 percent slopes, eroded (8F2)

The Hickory component makes up 90 percent of the map unit. Slopes are 18 to 35 percent. This component is on ground moraines, till plains. The parent material consists of Illinois till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 6e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Atlas soil, Rozetta soil, Ava soil and Wakeland soil are minor components.

Hickory silt loam, 35 to 60 percent slopes (8G)

The Hickory component makes up 90 percent of the map unit. Slopes are 35 to 60 percent. This component is on ground moraines, till plains. The parent material consists of loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is

moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 7e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Marseilles soil, Atlas soil, Wakeland soil, and Radford soils are minor components.

The Ava component makes up 90 percent of the map unit. Slopes are two to five percent. This component is on convex ridges on loess covered till plains. The parent material consists of loess over mixed loess and drift over till. Depth to a root restrictive layer, fragipan, is 25 to 40 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 27 inches during January, February, March, and April. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Frondorf soil and Fayette soil are minor components.

Rushville silt loam, zero to two percent slopes (16A)

The Rushville component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on depressions on ground moraines. The parent material consists of loess. Depth to a root restrictive layer, abrupt textural change, is nine to 19 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, and May. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3w. This soil meets hydric criteria.

Keomah silt loam, zero to two percent slopes (17A)

The Keomah component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Rozetta soil, Denny soil and Rushville soil are minor components.

Ipava silt loam, 0 to 2 percent slopes (43A)

The Ipava component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on till plains, broad ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater

than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Virden component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on till plains, ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, and May. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Sable component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on till plains, swales. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Denny component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions, till plains. The parent material consists of loess. Depth to a root restrictive layer, abrupt textural change, is 13 to 22 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Denny silt loam, zero to two percent slope (45A)

The Denny component makes up 95 percent of the map unit. Slopes are zero to two percent. This component is on depressions, till plains. The parent material consists of loess. Depth to a root restrictive layer, abrupt textural change, is 13 to 22 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, and May. Organic matter content in the surface horizon is about three percent.

Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Buckhart soil is a minor component.

Virden silt loam, zero to two percent slopes (47A)

The Virden component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on till plains, ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, and May. Organic matter content in the surface horizon is about five percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Ipava soil, Herrick soil and Piasa soil are minor components.

Virden silty clay loam, 0 to 2 percent slopes (50A)

The Virden component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on till plains, ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Ipava soil, Herrick soil, Piasa soil, and Timewell soil are minor components.

Muscatune silt loam, zero to two percent slopes (51A)

The Muscatune component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on ground moraines, till plains. The parent material consists of Peoria loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about five percent. Non-irrigated land capability classification is 1. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Sable soil, Osco soil, Edgington soil, Drummer soil and Denny soil are minor components.

Muscatune silt loam, two to five percent slopes (51B)

The Muscatune component makes up 95 percent of the map unit. Slopes are two to five percent. This component is on till plains, ground moraines. The parent material consists of Peoria loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about five percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Osco soil and Sable soil are minor components.

Atterberry silt loam, zero to two percent slopes (61A)

The Atterberry component makes up 98 percent of the map unit. Slopes are zero to two percent. This component is on flats. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria.

The Sable soil, Fayette soil, Denny soil and Rozetta soil are minor components.

Sable silty clay loam, zero to two percent slopes (68A)

The Sable component makes up 85 percent of the map unit. Slopes are zero to two percent. This component is on till plains, swales. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, and May. Organic matter content in the surface horizon is about five percent. Non-irrigated land capability classification is 2w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Ipava soil, Muscatune soil, Buckhart soil and Elburn soil are minor components.

Menfro silt loam, two to five percent slopes (79B)

The Menfro component makes up 90 percent of the map unit. Slopes are two to five percent. This component is on loess hills, uplands. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Menfro silt loam, five to 10 percent slopes, eroded (79C2)

The Menfro component makes up 85 percent of the map unit. Slopes are five to 10 percent. This component is on uplands, loess hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria.

Menfro silt loam, 10 to 18 percent slopes, eroded (79D2)

The Menfro component makes up 90 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria.

Osco silt loam, two to five percent slopes (86B)

The Osco component makes up 90 percent of the map unit. Slopes are two to five percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about four percent. Non irrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Sable soil, Muscatune soil, Ipava soil and Denny soil are minor components.

Osco silt loam, 5 to 10 percent slopes (86C2)

The Osco component makes up 90 percent of the map unit. Slopes are 5 to 10 percent. This component is on till plains, ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Ipava soil, Muscatune soil, Radford soil and Sable soil are minor components.

Elco silt loam, five to 10 percent slopes, eroded (119C2)

The Elco component makes up 97 percent of the map unit. Slopes are five to 10 percent. This component is on ground moraines. The parent material consists of loess over paleosol formed in till. Depth to a root restrictive layer, densic material, is 20 to 59 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Elco silty clay loam, five to 10 percent slopes, severely eroded (119C3)

The Elco component makes up 95 percent of the map unit. Slopes are five to 10 percent. This component is on ground moraines. The parent material consists of loess over paleosol formed in till. Depth to a root restrictive layer, densic material, is 20 to 59 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria.

Elco silt loam, 10 to 18 percent slopes, eroded (119D2)

The Elco component makes up 94 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines. The parent material consists of loess over paleosol formed in till. Depth to a root restrictive layer, densic material, is 20 to 59 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria.

The Thebes soil is a minor component.

Elco silty clay loam, 10 to 18 percent slopes, severely eroded (119D3)

The Elco component makes up 95 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines. The parent material consists of loess over paleosol formed in till. Depth to a root restrictive layer, densic material, is 20 to 59 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria.

Kendall silt loam, 0 to 2 percent slopes (242A)

The Kendall component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on outwash plains. The parent material consists of loess over outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrinkswell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, May. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

The Drummer soil, Brooklyn soil, Vesser soil and Sable soil are minor components.

Clarksdale silt loam, 0 to 2 percent slopes (257A)

The Clarksdale component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Rozetta soil, Greenbush soil, Virden soil and Denny soil are minor components.

Clarksdale silt loam, two to five percent slopes (257B)

The Clarksdale component makes up 90 percent of the map unit. Slopes are two to five percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about three percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Sable soil, Greenbrush soil, Denny soil and Rushville soil are minor components.

Assumption silt loam, 5 to 10 percent slopes, eroded (259C2)

The Assumption component makes up 90 percent of the map unit. Slopes are 5 to 10 percent. This component is on till plains, ground moraines. The parent material consists of fine-silty loess over paleosol formed in loamy till. Depth to a root restrictive layer, densic material, is 48 to 59 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water

saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Coatsburg soil, Radford soil, and Lawson soil are minor components.

Caseyville silt loam, zero to two percent slopes (267A)

The Caseyville component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria.

The Pierron soil is a minor component.

Stronghurst silt loam, zero to two percent slopes (278A)

The Stronghurst component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on flats. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria.

The Edgington soil, Fayette soil, Greenbush soil, Rozetta soil, Rushville soil and Sable soil are minor components.

Rozetta silt loam, two to five percent slopes (279B)

The Rozetta component makes up 90 percent of the map unit. Slopes are two to five percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non irrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Keomah component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This

soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Clarksdale component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 1. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Sable component makes up 85 percent of the map unit. Slopes are zero to two percent. This component is on till plains, swales. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, and May. Organic matter content in the surface horizon is about five percent. Non-irrigated land capability classification is 2w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Stronghurst soil is a minor component.

Rozetta silt loam, five to 10 percent slopes, eroded (279C2)

The Rozetta component makes up 94 percent of the map unit. Slopes are five to 10 percent. This component is on till plains, ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non irrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Keomah component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Atlas soil and Stronghurst soil are minor components.

Rozetta silty clay loam, five to 10 percent slopes, severely eroded (279C3)

The Rozetta component makes up 94 percent of the map unit. Slopes are five to 10 percent. This component is on till plains, ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Atlas soil, Bold soil, and Bunkum soil are minor components.

Rozetta silt loam, 10 to 18 percent slopes, eroded (279D2)

The Rozetta component makes up 94 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines, till plains. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Atlas soil and Hickory soil are minor components.

Rozetta silty clay loam, 10 to 18 percent slopes, severely eroded (279D3)

The Rozetta component makes up 94 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria.

The Bunkum soil and Atlas soil are minor components.

Fayette silt loam, two to five percent slopes (280B)

The Fayette component makes up 97 percent of the map unit. Slopes are two to five percent. This component is on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It

is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria.

The Edgington soil, Keoman soil, Stronghurst soil and Atterberry soil are minor components.

Fayette silt loam, five to 10 percent slopes, eroded (280C2)

The Fayette component makes up 95 percent of the map unit. Slopes are five to 10 percent. This component is on side slopes on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria.

The Comfrey soil is a minor component.

Fayette silt loam, 10 to 18 percent slopes (280D)

The Fayette component makes up 92 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines, uplands. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

The Keomah soil and Thebes soil are minor components.

Fayette silt loam, 10 to 18 percent slopes, eroded (280D2)

The Fayette component makes up 95 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Fayette silty clay loam, 10 to 18 percent slopes, severely eroded (280D3)

The Fayette component makes up 95 percent of the map unit. Slopes are 10 to 18 percent. This component is on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not

ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria.

The Elco soil, Atlas soil and Thebes soil are minor components.

Winfield silt loam, two to five percent slopes (477B)

The Winfield component makes up 95 percent of the map unit. Slopes are two to five percent. This component is on ground moraines, loess hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Winfield silt loam, five to 10 percent slopes, eroded (477C2)

The Winfield component makes up 95 percent of the map unit. Slopes are five to 10 percent. This component is on loess hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria.

Winfield silty clay loam, 10 to 18 percent slopes, severely eroded (477D3)

The Winfield component makes up 90 percent of the map unit. Slopes are 10 to 18 percent. This component is on loess hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria.

Bunkum silt loam, two to five percent slopes, eroded (515B2)

The Bunkum component makes up 90 percent of the map unit. Slopes are two to five percent. This component is on ground moraines. The parent material consists of loess over silty pedisediment. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Bunkum silty clay loam, five to 10 percent slopes, severely eroded (515C3)

The Bunkum, severely eroded component makes up 93 percent of the map unit. Slopes are five to 10 percent. This component is on uplands, ground moraines. The parent material consists of loess over silty pedisediment. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Rozetta soil is a minor component.

Emery silt loam, two to five percent slopes, eroded (538B2)

The Emery component makes up 90 percent of the map unit. Slopes are two to five percent. This component is on ground moraines. The parent material consists of loess over silty pedisediment. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Emery silt loam, 5 to 10 percent slopes, eroded (538C2)

The Emery component makes up 90 percent of the map unit. Slopes are 5 to 10 percent. This component is on ground moraines. The parent material consists of loess over silty pedisediment. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Greenbush silt loam, two to five percent slopes (675B)

The Greenbush component makes up 95 percent of the map unit. Slopes are two to five percent. This component is on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria.

The Sable soil and Denny soil are minor components.

Greenbush silt loam, five to 10 percent slopes, eroded (675C2)

The Greenbush component makes up 91 percent of the map unit. Slopes are five to 10 percent. This component is on ridges and side slopes on ground moraines. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria.

The Emery soil, Bunkum soil and Atterberry soil are minor components.

Goss-Menfro complex, 35 to 60 percent slopes (833G)

The Goss component makes up 60 percent of the map unit. Slopes are 35 to 60 percent. This component is on hillslopes. The parent material consists of clayey residuum weathered from cherty limestone. Depth to a root restrictive layer, abrupt textural change, is two to 30 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 7e. This soil does not meet hydric criteria.

The Menfro component makes up 30 percent of the map unit. Slopes are 35 to 60 percent. This component is on hillslopes. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 7e. This soil does not meet hydric criteria.

Rock outcrop, limestone-Lacrescent complex, 35 to 60 percent slopes (837G)

The Rock outcrop is a miscellaneous area.

The Lacrescent component makes up 30 percent of the map unit. Slopes are 35 to 60 percent. This component is on bluffs. The parent material consists of Colluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed three percent.

Beaucoup silty clay loam, zero to two percent slopes, frequently flooded (3070A)

The Beaucoup component makes up 85 percent of the map unit. Slopes are zero to two percent. This component is on flood plains. The parent material consists of silty alluvium. Depth to a root restrictive layer is greater than

60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, and May. Organic matter content in the surface horizon is about six percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria.

The Thorp soil is a minor component.

Radford silt loam, 0 to 2 percent slopes, frequently flooded (3074A)

The Radford component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

The Sawmill soil is a minor component.

Arenzville silt loam, 0 to two percent slopes, frequently flooded (3078A)

The Arenzville component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains. The parent material consists of silty alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during February, March, and April. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Haymond silt loam, zero to two percent slopes, frequently flooded (3331A)

The Haymond component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on flood plains. The parent material consists of silty alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

The Twomile soil is a minor component.

Wakeland silt loam, zero to two percent slopes, frequently flooded (3333A)

The Wakeland component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than

60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria.

The Sawmill soil and Birds soil are minor components.

Lawson silt loam, zero to two percent slopes, frequently flooded (3451A)

The Lawson component makes up 92 percent of the map unit. Slopes are zero to two percent. This component is on flood plains. The parent material consists of silty alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 3w. This soil does not meet hydric criteria.

The Comfrey soil, Sawmill soil, Otter soil, Birds soil and Zook soil are minor components.

Elsah gravelly loam, zero to two percent slopes, frequently flooded (3475A)

The Elsah component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on flood plains. The parent material consists of gravelly alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2s. This soil does not meet hydric criteria.

Blyton silt loam, zero to two percent slopes, frequently flooded (3634A)

The Blyton component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on flood plains. The parent material consists of silty alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, and April. Organic matter content in the surface horizon is about two percent. Non irrigated land capability classification is 2w. This soil does not meet hydric criteria.

The Twomile soil and Birds soil are minor components.

La Hogue loam, two to five percent slopes, rarely flooded (7102B)

The La Hogue component makes up 100 percent of the map unit. Slopes are two to five percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than

60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 15 inches during January, February, March, April, and May. Organic matter content in the surface horizon is about four percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

The McFain soil, Ambraw soil and Beaucoup soil are minor components.

Proctor silt loam, zero to two percent slopes, rarely flooded (7148A)

The Proctor component makes up 95 percent of the map unit. Slopes are zero to two percent. This component is on flood plains. The parent material consists of loess over outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Non irrigated land capability classification is 1. This soil does not meet hydric criteria.

The Sawmill soil is a minor component.

Water (W)

The Water is a miscellaneous area.

7-B.2 Missouri

Booker silty clay, frequently ponded, zero to two percent slopes, occasionally flooded (13598)

The Booker component makes up 95 percent of the map unit. Slopes are zero to two percent. This component is on river valleys and floodplain steps. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is very high. This soil is occasionally flooded. It is frequently ponded. Non-irrigated land capability classification is 5w. This soil meets hydric criteria.

Landes fine sandy loam, zero to two percent slopes, occasionally flooded (36023)

The Landes component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on floodplain steps and river valleys. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed two percent. There are no saline horizons within 30 inches of the soil surface.

The Sarpy soil is a minor component.

Menfro silt loam, five to nine percent slopes, eroded (60001)

The Menfro component makes up 100 percent of the map unit. Slopes are five to nine percent. This component is on hills, hillslopes. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Menfro silt loam, nine to 14 percent slopes, eroded (60003)

The Menfro component makes up 85 percent of the map unit. Slopes are nine to 14 percent. This component is on hills, hillslopes. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 4e. This soil does not meet hydric criteria.

Menfro silt loam, 14 to 20 percent slopes, eroded (60004)

The Menfro component makes up 90 percent of the map unit. Slopes are 14 to 20 percent. This component is on hillslopes, hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 6e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Goss soil is a minor component.

Menfro silt loam, 20 to 45 percent slopes (60005)

The Menfro component makes up 89 percent of the map unit. Slopes are 20 to 45 percent. This component is on hills, hillslopes. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 6e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Goss soil and Rock outcrop soil are minor components.

Urban land-Harvester complex, two to nine percent slopes (60025)

The Harvester component makes up 40 percent of the map unit. Slopes are two to nine percent. This component is on hills, interfluves. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 34 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria.

The Urban land is a miscellaneous area.

Menfro silt loam, two to five percent slopes (60165)

The Menfro component makes up 85 percent of the map unit. Slopes are two to five percent. This component is on interfluves, hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Menfro silt loam, karst, two to 14 percent slopes, eroded (60171)

The Menfro, karst component makes up 90 percent of the map unit. Slopes are two to 14 percent. This component is on hills, hillslopes. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. Generated brief soil descriptions are created for major components.

The Caneyville soil and Moniteau soil are minor components.

Menfro silt loam, karst, nine to 35 percent slopes (60176)

The Menfro, karst component makes up 85 percent of the map unit. Slopes are nine to 35 percent. This component is on hills, hillslopes. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 6e. This soil does not meet hydric criteria.

Menfro-Urban land complex, two to five percent slopes (60189)

The Menfro component makes up 55 percent of the map unit. Slopes are two to five percent. This component is on interfluves, hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria.

The Urban land is a miscellaneous area.

Urban land-Harvester complex, nine to 20 percent slopes (60223)

The Harvester component makes up 25 percent of the map unit. Slopes are nine to 20 percent. This component is on hillslopes, hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 34 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 6e. This soil does not meet hydric criteria.

The Urban land is a miscellaneous area.

Urban land-Harvester complex, karst, two to nine percent slopes (60224)

The Harvester, karst component makes up 30 percent of the map unit. Slopes are two to nine percent. This component is on hillslopes, hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 34 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 3e. This soil does not meet hydric criteria.

The Urban land is a miscellaneous area.

Blase silty clay loam, zero to two percent slopes, rarely flooded (64016)

The Blase component makes up 95 percent of the map unit. Slopes are zero to two percent. This component is on river valleys, stream terraces. The parent material consists of clayey alluvium over loamy alluvium. Depth to a root restrictive layer, strongly contrasting textural stratification, is 20 to 40 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 20 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is

2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed four percent.

DeSioux loam, zero to two percent slopes, rarely flooded (64024)

The DeSioux component makes up 95 percent of the map unit. Slopes are zero to two percent. This component is on stream terraces, river valleys. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about three percent. Non irrigated land capability classification is 1. This soil does not meet hydric criteria.

The Landes soil is a minor component.

Blake silt loam, zero to two percent slopes, frequently flooded (66012)

The Blake component makes up 85 percent of the map unit. Slopes are zero to two percent. This component is on river valleys, flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 14 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 5w. Irrigated land capability classification is 1. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 18 percent.

The SansDessein soil and Haynie soil are minor components.

Lowmo silt loam, zero to two percent slopes, occasionally flooded (66019)

The Lowmo component makes up 85 percent of the map unit. Slopes are zero to two percent. This component is on floodplain steps and river valleys. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 48 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed one percent.

The Peers soil, SansDessein soil and Treloar soil are minor components.

Wilbur silt loam, zero to two percent slopes, frequently flooded (66024)

The Wilbur component makes up 80 percent of the map unit. Slopes are zero to two percent. This component is on flood plains, river valleys. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive

layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3w. This soil does not meet hydric criteria.

The Moniteau soil and Wilbur soil are minor components.

Nevin-Urban land complex, zero to two percent slopes (66047)

The Nevin component makes up 50 percent of the map unit. Slopes are zero to two percent. This component is on interfluves, hills. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria.

The Urban land is a miscellaneous area.

Peers silty clay loam, zero to two percent slopes, occasionally flooded (66059)

The Peers component makes up 85 percent of the map unit. Slopes are zero to two percent. This component is on river valleys and floodplain steps. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 22 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed one percent.

The SansDessein soil and Lowmo soil are minor components.

Carlow silty clay loam, zero to two percent slopes, occasionally flooded (66066)

The Carlow component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on river valleys and floodplain steps. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is very high. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 3w. This soil meets hydric criteria.

Portage clay, zero to two percent slopes, occasionally flooded, frequently ponded (66100)

The Portage component makes up 85 percent of the map unit. Slopes are zero to two percent. This component is on river valleys and floodplain steps. The parent material consists of alluvium. Depth to a root restrictive layer is

greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is very high. This soil is occasionally flooded. It is frequently ponded. A seasonal zone of water saturation is at six inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about four percent. Non-irrigated land capability classification is 5w. This soil meets hydric criteria.

SansDessein silty clay, zero to two percent slopes, occasionally flooded (66110)

The SansDessein component makes up 90 percent of the map unit. Slopes are zero to two percent. This component is on river valleys and floodplain steps. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is very high. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at eight inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about two percent. Non-irrigated land capability classification is 3w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed two percent.

The Blencoe soil and Peers soil are minor components.

Haynie-Treloar-Blake complex, zero to two percent slopes, frequently flooded (66126)

The Haynie component makes up 45 percent of the map unit. Slopes are zero to two percent. This component is on river valleys, flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed five percent.

The Treloar component makes up 25 percent of the map unit. Slopes are zero to two percent. This component is on river valleys and floodplain steps. The parent material consists of sandy alluvium over loamy alluvium. Depth to a root restrictive layer, strongly contrasting textural stratification, is 16 to 39 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 28 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about one percent. Non-irrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed three percent.

The Blake component makes up 20 percent of the map unit. Slopes are zero to two percent. This component is on river valleys, flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer

is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 14 inches during January, February, March, April, May, November, and December. Organic matter content in the surface horizon is about three percent. Non-irrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed five percent.

The Sans Dessein soil and Sarpy soil are minor components.

Pits, quarry (99000)

The Pits is a miscellaneous area.

Water (99001)

The Water is a miscellaneous area.

APPENDIX 7-C

Agricultural Impact Mitigation Agreement

(to be provided in the FERC application)