

## 059CM—Clareson-Eram silty clay loams, 3 to 15 percent slopes

### Map Unit Composition

Clareson: 55 percent  
 Eram: 30 percent  
 Minor components: 15 percent

### Component Descriptions

#### Clareson

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey residuum weathered from limestone  
*Slope:* 3 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 3.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Ecological site:* Shallow Flats (pe35-42)  
*Land capability (nonirrigated):* 6e

#### Typical Profile:

A—0 to 7 inches; silty clay loam  
 BA—7 to 15 inches; silty clay loam  
 Bt—15 to 26 inches; flaggy silty clay loam  
 R—26 to 30 inches; unweathered bedrock

#### Eram

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey residuum weathered from shale  
*Slope:* 3 to 12 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 5.6 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* Very high  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 6e

#### Typical Profile:

H1—0 to 7 inches; silty clay loam  
 H2—7 to 38 inches; silty clay  
 Cr—38 to 42 inches; weathered bedrock

### Minor Components

#### Bates

*Composition:* About 10 percent  
*Landform:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

#### Rock outcrop

*Composition:* About 5 percent  
*Landform:* hillslope on upland

## 059DC—Dennis silt loam, 2 to 5 percent slopes

### Map Unit Composition

Dennis: 90 percent  
 Minor components: 10 percent

### Component Descriptions

#### Dennis

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope, summit  
*Parent material:* Silty and clayey residuum weathered from shale  
*Slope:* 2 to 5 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 9.3 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* High  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

#### Typical Profile:

H1—0 to 10 inches; silt loam  
 H2—10 to 15 inches; silty clay loam  
 H3—15 to 60 inches; silty clay

### Minor Components

**Bates**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Woodson**

*Composition:* About 5 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Upland (pe35-42)

## 059EC—Eram-Lula complex, 3 to 7 percent slopes

### Map Unit Composition

Eram: 60 percent  
 Lula: 25 percent  
 Minor components: 15 percent

### Component Descriptions

**Eram**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey residuum weathered from shale  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 5.6 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 7 inches; silty clay loam  
 H2—7 to 38 inches; silty clay  
 Cr—38 to 42 inches; weathered bedrock

**Lula**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Summit, backslope

*Parent material:* Fine-silty residuum weathered from limestone

*Slope:* 3 to 5 percent  
*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 7.9 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 7 inches; silt loam  
 H2—7 to 12 inches; silty clay loam  
 H3—12 to 44 inches; silty clay loam  
 R—44 to 52 inches; unweathered bedrock

**Minor Components****Bates**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Kenoma**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Olpe**

*Composition:* About 5 percent  
*Landform:* paleoterrace on upland  
*Slope:* 1 to 5 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

## 059LN—Lebo-Rock outcrop complex, 20 to 40 percent slopes

### Map Unit Composition

Lebo: 75 percent  
 Rock outcrop: 15 percent

Minor components: 10 percent

### Component Descriptions

#### Lebo

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Loamy residuum weathered from sandstone and shale

*Slope:* 20 to 40 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

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

*Available water capacity:* Low (About 3.4 inches)

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

*Flooding hazard:* None

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

*Runoff class:* High

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 7e

#### Typical Profile:

H1—0 to 7 inches; stony silty clay loam

H2—7 to 14 inches; channery silty clay loam

H3—14 to 28 inches; very channery silty clay loam

Cr—28 to 36 inches; weathered bedrock

#### Rock outcrop

*MLRA:* 112 - Cherokee Prairies

*Landform:* Ridge on upland

*Hillslope position:* Summit

*Parent material:* Residuum weathered from limestone

*Drainage class:* Well drained

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

*Runoff class:* Very high

*Land capability (nonirrigated):* 8e

### Minor Components

#### Clareson

*Composition:* About 10 percent

*Landform:* hillslope on upland

*Slope:* 3 to 15 percent

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

*Drainage class:* Well drained

*Ecological site:* Shallow Flats (pe35-42)

## 0910C—Oska-Martin complex, 4 to 8 percent slopes

### Map Unit Composition

Oska: 50 percent

Martin: 30 percent

Minor components: 20 percent

### Component Descriptions

#### Oska

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey residuum weathered from limestone and shale

*Slope:* 4 to 8 percent

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

*Drainage class:* Well drained

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

*Available water capacity:* Low (About 5.6 inches)

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

*Flooding hazard:* None

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

*Runoff class:* High

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

H1—0 to 16 inches; silty clay loam

H2—16 to 32 inches; silty clay

R—32 to 36 inches; unweathered bedrock

#### Martin

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale

*Slope:* 4 to 8 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 9.9 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 21 to 26 inches

*Runoff class:* Very high

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 15 inches; silty clay loam  
H2—15 to 60 inches; silty clay

**Minor Components****Sogn**

*Composition:* About 5 percent  
*Slope:* 15 to 20 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Shallow Limy (pe30-37)

**Sharpsburg**

*Composition:* About 5 percent  
*Slope:* 3 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Sibleyville**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Vinland**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Loamy Upland (pe35-42)

**1051—Arisburg silt loam, 1 to 3 percent slopes****Map Unit Composition**

Arisburg: 85 percent  
Minor components: 15 percent

**Component Descriptions****Arisburg**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Summit  
*Parent material:* Loess  
*Slope:* 1 to 3 percent  
*Drainage class:* Somewhat poorly drained

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

*Available water capacity:* High (About 10.5 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 16 to 20 inches

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe30-37)

*Land capability (nonirrigated):* 2e

*Typical Profile:*

Ap—0 to 9 inches; silt loam  
Bt—9 to 15 inches; silty clay loam  
Btg1—15 to 22 inches; silty clay  
Btg2—22 to 29 inches; silty clay  
Btg3—29 to 44 inches; silty clay  
BCg—44 to 60 inches; silty clay loam

*Component note:* The Arisburg series was formerly mapped as the Grundy series in the Johnson County and Miami County Soil Surveys. The Arisburg soils are very deep and have moderately slow permeability. In some areas the soil is 40 to 60 inches to bedrock. In some places the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 3 to 6 percent.

**Minor Components****Summit**

*Composition:* About 10 percent  
*Landform:* interfluvial on upland  
*Slope:* 1 to 3 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Wagstaff**

*Composition:* About 5 percent  
*Landform:* interfluvial on upland  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. This soil is well suited to all crops commonly grown in the Hillsdale watershed. Erosion is a serious hazard, and it can be controlled by terraces, contour farming or conservation tillage. This soil has good potential for hay or tame grasses. The high clay content limits the suitability of this soil for many engineering uses. The land capability classification is 11e.

## 1109—Bates loam, 1 to 4 percent slopes

### Map Unit Composition

Bates: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Bates

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope, shoulder  
*Parent material:* Residuum weathered from sandstone and shale  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* Low (About 5.8 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 2e

#### Typical Profile:

A—0 to 11 inches; loam  
BA—11 to 16 inches; clay loam  
Bt—16 to 25 inches; clay loam  
BC—25 to 32 inches; clay loam  
Cr—32 to 36 inches; weathered bedrock

*Component note:* The Bates soils are moderately deep and have moderate permeability. Shrink-swell potential is low. Included in some areas are soils that are 10 to 20 inches to sandstone bedrock. In some places the dark surface soil that is less than 7 inches thick. Also, included are some areas that have slopes from 5 to 8 percent.

### Minor Components

#### Eram

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

#### Rock outcrop

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent

#### Dennis

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated or pasture. This soil is suited to most crops grown in the watershed. Erosion is a serious hazard that can be controlled by contour farming or conservation tillage. This soil has good potential for hay, tame grasses, and trees. The depth to bedrock limits the suitability of this soil for many engineering uses. The land capability classification is 11e.

## 1112—Bates loam, 4 to 8 percent slopes

### Map Unit Composition

Bates: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Bates

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Fine-loamy residuum weathered from sandstone and shale  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* Low (About 5.8 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

A—0 to 11 inches; loam  
 BA—11 to 16 inches; clay loam  
 Bt—16 to 25 inches; clay loam  
 BC—25 to 32 inches; clay loam  
 Cr—32 to 36 inches; weathered bedrock

*Component note:* The Bates soils are moderately deep and have moderate permeability. Shrink-swell potential is low. Included in some areas the soils are 10 to 20 inches to bedrock. In some places the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 9 to 12 percent.

**Minor Components****Eram**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Shidler**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Sandstone (pe35-42)

**Rock outcrop**

*Composition:* About 5 percent  
*Slope:* 4 to 8 percent

*General Considerations:* Most areas of this soil are cultivated or in pasture. This soil is suited to most crops grown in the watershed. Erosion is a serious hazard that can be controlled by contour farming or conservation tillage. This soil has good potential for hay, tame grasses, and trees. The depth to bedrock limits the suitability of this soil for many engineering uses. The land capability classification is IIIe.

**1187—Bucyrus silt loam, 1 to 4 percent slopes****Map Unit Composition**

Bucyrus: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Bucyrus**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Summit, shoulder  
*Parent material:* Fine-silty loess over silty and clayey residuum weathered from limestone and shale  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* More than 60 inches to bedrock  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 10.4 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

Ap—0 to 8 inches; silt loam  
 A—8 to 16 inches; silt loam  
 BA—16 to 22 inches; silty clay loam  
 Bt1—22 to 32 inches; silty clay loam  
 Bt2—32 to 52 inches; silty clay  
 Bt3—52 to 71 inches; silty clay  
 R—71 to 75 inches; unweathered bedrock

*Component note:* The Bucyrus series was formerly mapped as the Newtonia series in the Miami County Soil Survey and the Polo series in Johnson County Soil Survey. The Bucyrus soils are very deep and have moderately slow permeability. In some areas the soil is 40 to 60 inches to limestone bedrock. In some places the dark surface soil is less than 10 inches thick. Also, included are some areas that have slopes from 4 to 7 percent.

**Minor Components****Shidler**

*Composition:* About 5 percent

*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Sandstone (pe35-42)

**Wagstaff**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Eram**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. This soil is well suited to all crops commonly grown in the watershed. Erosion is a serious hazard that can be controlled by terraces, contour farming, or conservation tillage. This soil has good potential for hay or tame grasses. The high clay content limits the suitability of this soil for many engineering uses. The land capability classification is 1Ie.

## 1188—Bucyrus silty clay loam, 4 to 8 percent slopes

*Mapunit Information:* The Bucyrus series was formerly mapped as the Newtonia series in the Miami County Soil Survey and the Polo series in the Johnson County Soil Survey.

### Map Unit Composition

Bucyrus: 85 percent  
 Minor components: 15 percent

### Component Descriptions

**Bucyrus**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope

*Parent material:* Fine-silty loess over silty and clayey residuum weathered from limestone and shale  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* More than 60 inches to bedrock  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 10.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 6 inches; silty clay loam  
 BA—6 to 17 inches; silty clay loam  
 Bt1—17 to 32 inches; silty clay loam  
 Bt2—32 to 52 inches; silty clay  
 Bt3—52 to 71 inches; silty clay  
 R—71 to 75 inches; unweathered bedrock

*Component note:* The Bucyrus series was formerly mapped as the Newtonia series in the Miami County Soil Survey and the Polo series in Johnson County Soil Survey. The Bucyrus soils are very deep and have moderately slow permeability. In some areas the soil is 40 to 60 inches to bedrock. In some places the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 8 to 11 percent.

**Minor Components****Eram**

*Composition:* About 10 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Shidler**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Sandstone (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. This soil is suited to all crops

commonly grown in the watershed. Erosion is a serious hazard, that can be controlled by terraces, contour farming, or conservation tillage. This soil has good potential for hay, tame grasses, and trees. The high clay content limits the suitability of this soil for many engineering uses. The land capability classification is Ille.

### **1366—Clareson-Rock outcrop complex, 2 to 15 percent slopes**

#### **Map Unit Composition**

Clareson: 60 percent  
Rock outcrop: 20 percent  
Minor components: 20 percent

#### **Component Descriptions**

##### **Clareson**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope, shoulder  
*Parent material:* Clayey residuum weathered from limestone  
*Slope:* 2 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Impermeable (About 0.00 in/hr)  
*Available water capacity:* Low (About 3.9 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Ecological site:* Shallow Flats (pe35-42)  
*Land capability (nonirrigated):* 6e

##### *Typical Profile:*

A—0 to 11 inches; silty clay loam  
BA—11 to 16 inches; flaggy silty clay loam  
Bt—16 to 28 inches; flaggy silty clay  
BC—28 to 33 inches; flaggy silty clay  
R—33 to 37 inches; unweathered bedrock

*Component note:* The Clareson soils are moderately deep and have moderately slow permeability. Shrink-swell potential is moderate. Included are soils that are 10 to 20 inches to limestone bedrock. In some places the dark surface soil has chert fragments. In some areas the soils have a

cherty subsoil. Also, included are some areas that have slopes from 16 to 20 percent.

##### **Rock outcrop**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope, shoulder  
*Parent material:* Residuum weathered from limestone  
*Slope:* 2 to 15 percent  
*Depth to restrictive feature:* 0 inches to bedrock (lithic)  
*Available water capacity:* Very low (About 0.0 inches)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Land capability (nonirrigated):* 8s

##### **Minor Components**

##### **Lebo**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 2 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

##### **Summit**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 2 to 15 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

##### **Wagstaff**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 2 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

##### **Eram**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 2 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

*General Considerations:* Most areas of this map unit are rangeland. They are suited to rangeland. The major concerns of

management are erosion and low available water holding capacity. The depth to bedrock and large stones limits the suitability of this map unit for many engineering uses. The land capability classification is Vle.

## 1516—Dennis silt loam, 1 to 3 percent slopes

### Map Unit Composition

Dennis: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Dennis

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Silty and clayey residuum weathered from shale

*Slope:* 1 to 3 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* Moderate (About 8.0 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 9 to 14 inches

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 2e

#### Typical Profile:

Ap—0 to 11 inches; silt loam  
BA—11 to 17 inches; silty clay loam  
Bt1—17 to 25 inches; silty clay  
Bt2—25 to 36 inches; silty clay  
Bt3—36 to 48 inches; silty clay  
BC—48 to 80 inches; silty clay

*Component note:* The Dennis soils are very deep and have slow permeability. Shrink-swell potential is high. In some areas are soils that are 40 to 60 inches to shale bedrock. In some places the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 4 to 7 percent.

### Minor Components

#### Bates

*Composition:* About 5 percent

*Landform:* hillslope on upland

*Slope:* 1 to 3 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe35-42)

#### Eram

*Composition:* About 5 percent

*Landform:* hillslope on upland

*Slope:* 1 to 3 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

#### Kenoma

*Composition:* About 5 percent

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

*General Considerations:* Most areas of this soil are used for cultivated. This soil is well suited to all crops commonly grown in the watershed. Erosion is a serious hazard that can be controlled by terraces, contour farming, or conservation tillage. This soil has good potential for hay, tame grasses, and trees. The wetness limits the suitability of this soil for many engineering uses. The land capability classification is Ile.

## 1518—Dennis silt loam, 2 to 5 percent slopes

### Map Unit Composition

Dennis: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Dennis

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Hillslope position:* Shoulder

*Parent material:* Residuum weathered from shale

*Slope:* 2 to 5 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* Moderate (About 7.9 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 24 to 36 inches

*Runoff class:* High

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 10 inches; silt loam  
BA—10 to 15 inches; silty clay loam  
Bt—15 to 46 inches; silty clay  
BC—46 to 79 inches; silty clay

**Minor Components**

**Bates**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Eram**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Kenoma**

*Composition:* About 5 percent  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

*General Considerations:* These soils are best suited to rangeland. The major concerns of management are the hazard of erosion, the low available water capacity, and the brush and trees. Overgrazing reduces the growth and vigor of the grasses and increases runoff and growth of brush and trees. Proper stocking, uniform grazing distribution, deferred grazing, and brush management help keep the range in good condition.

**1639—Eram silty clay loam, 1 to 4 percent slopes**

**Map Unit Composition**

Eram: 85 percent  
Minor components: 15 percent

**Component Descriptions**

**Eram**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Shoulder, backslope  
*Parent material:* Silty and clayey residuum weathered from acid shale  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 4.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 9 inches; silty clay loam  
Bt—9 to 18 inches; silty clay  
BC—18 to 27 inches; silty clay  
Cr—27 to 31 inches; weathered bedrock

*Component note:* The Eram soils are moderately deep and have slow permeability. Shrink-swell potential is high. Included are some areas that soils are 10 to 20 inches to shale bedrock. In some places where the soil contains chert fragments throughout. Some areas contain soils that have a calcareous subsoil. In some areas the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 5 to 8 percent.

**Minor Components**

**Shidler**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Sandstone (pe35-42)

**Summit**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Wagstaff**

*Composition:* About 5 percent

*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of this soil is used for cultivated crops or pasture. This soil is suited for most crops in the watershed. This soil has good potential for hay and pasture. Seasonal droughtiness is a problem. Erosion is a serious hazard that can be controlled by conservation tillage or contour farming. The high clay content and the depth to bedrock limits the suitability of this soil for many engineering uses. The land capability classification is IIIe.

## 1641—Eram-Shidler silty clay loams, 4 to 8 percent slopes

### Map Unit Composition

Eram: 50 percent  
 Shidler: 35 percent  
 Minor components: 15 percent

### Component Descriptions

#### Eram

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey residuum weathered from acid shale  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 4.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* Very high  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 4e

#### Typical Profile:

Ap—0 to 9 inches; silty clay loam  
 Bt—9 to 18 inches; silty clay  
 BC—18 to 27 inches; silty clay  
 Cr—27 to 31 inches; weathered bedrock

*Component note:* The Eram soils are moderately deep and have slow permeability. Shrink-swell potential is high. Included are areas that are soils are 10 to 20 inches to shale bedrock. Included are some places the soil contains chert fragments throughout. Some areas contain soils that have a calcareous subsoil. In some areas the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 9 to 12 percent.

#### Shidler

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Loamy residuum weathered from limestone  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very low (About 2.4 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Ecological site:* Shallow Sandstone (pe35-42)  
*Land capability (nonirrigated):* 7s

#### Typical Profile:

A—0 to 12 inches; silty clay loam  
 R—12 to 16 inches; unweathered bedrock

*Component note:* The Shidler soils are very shallow to shallow and have moderate permeability. Shrink-swell potential is moderate. In some areas the soil is less than 10 inches thick to limestone bedrock. In some places the bedrock is exposed at the surface. Also, included are some areas that have slopes from 9 to 12 percent.

### Minor Components

#### Summit

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

#### Wagstaff

*Composition:* About 5 percent  
*Landform:* hillslope on upland

*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Lebo**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of these soils are used for pasture. These soils are suited for hay and pasture. Seasonal droughtiness is a problem. The available water holding capacity of the Eram soil is low and the Shidler soil is very low. Erosion is a serious hazard that can be controlled by conservation tillage or contour farming. The high clay content and the depth to bedrock limits the suitability of these soils for many engineering uses. The land capability classification is IVE.

## **1651—Eram-Lebo silty clay loams, 5 to 20 percent slopes**

### **Map Unit Composition**

Eram: 50 percent  
 Lebo: 30 percent  
 Minor components: 20 percent

### **Component Descriptions**

**Eram**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey residuum weathered from acid shale  
*Slope:* 5 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 4.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* Very high

*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

Ap—0 to 9 inches; silty clay loam  
 Bt—9 to 18 inches; silty clay  
 BC—18 to 27 inches; silty clay  
 Cr—27 to 31 inches; weathered bedrock

*Component note:* The Eram soils are moderately deep and have slow permeability. Shrink-swell potential is high. Included are some areas the soil is 10 to 20 inches to shale or limestone bedrock. Included are some places where the soil contains chert fragments throughout. Some areas have a calcareous subsoil. In some areas the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 21 to 25 percent.

**Lebo**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Loamy residuum weathered from sandstone and shale  
*Slope:* 5 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 5.6 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

A—0 to 11 inches; channery silty clay loam  
 Bw1—11 to 18 inches; channery silty clay loam  
 Bw2—18 to 28 inches; channery silty clay loam  
 C—28 to 38 inches; very channery silty clay loam  
 Cr—38 to 42 inches; weathered bedrock  
*Component note:* The Lebo soils are moderately deep and have moderate permeability. Included are some areas the soil is 10 to 20 inches to limestone bedrock. In some places the dark surface soil less than 7 inches thick. Also, included are some areas that have slopes from 3 to 5

percent.

### Minor Components

#### Clareson

*Composition:* About 10 percent  
*Landform:* hillslope on upland  
*Slope:* 5 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Flats (pe35-42)

#### Dennis

*Composition:* About 10 percent  
*Landform:* hillslope on upland  
*Slope:* 5 to 20 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of these soils are rangeland and pasture. These soils are well suited to tame and native grasses. Major concerns are erosion, seasonal droughtiness, and low available holding capacities. The high clay content, slope, and depth to bedrock limits the suitability of these soils for many engineering uses. The land capability classification is Vle.

## 1953—Hepler silt loam, 0 to 2 percent slopes, occasionally flooded

### Map Unit Composition

Hepler: 90 percent  
 Minor components: 10 percent

### Component Descriptions

#### Hepler

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Flood plain on valley  
*Hillslope position:* Toeslope  
*Parent material:* Fine-silty alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* Very high (About 12.0 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 9 to 14 inches

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe35-42)

*Land capability (nonirrigated):* 2w

#### Typical Profile:

Ap—0 to 9 inches; silt loam  
 E1—9 to 16 inches; silt loam  
 E2—16 to 25 inches; silt loam  
 Bt1—25 to 29 inches; silty clay loam  
 Bt2—29 to 40 inches; silty clay loam  
 BC—40 to 60 inches; silty clay loam

*Component note:* The Hepler soils are very deep and have moderately slow permeability. Shrink-swell potential is moderate. In some places the dark surface soil is less than 5 inches thick. In some areas the soil is moderately well drained. Also, included are some areas that have slopes from 3 to 5 percent.

### Minor Components

#### Mason

*Composition:* About 10 percent  
*Landform:* flood plain on upland  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. Some areas are pasture or trees. It is well suited to all crops grown in the watershed. Erosion is a serious hazard that can be controlled by conservation tillage or no-till. This soil is well suited for hay land and pasture. Flooding and wetness limits the suitability of this soil for many engineering uses. The land capability classification is Ilw.

## 2326—Kenoma silt loam, 1 to 4 percent slopes

### Map Unit Composition

Kenoma: 90 percent  
 Minor components: 10 percent

### Component Descriptions

#### Kenoma

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey pedisegment  
*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Moderate (About 8.7 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* Very high  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 4 inches; silt loam  
 A—4 to 10 inches; silt loam  
 Bt1—10 to 18 inches; silty clay  
 Bt2—18 to 27 inches; silty clay  
 Bt3—27 to 41 inches; silty clay  
 Bt4—41 to 59 inches; silty clay  
 Bt5—59 to 73 inches; silty clay loam

*Component note:* The Kenoma soils are very deep and have very slow permeability. In some areas the soil is 40 to 60 inches to shale or limestone bedrock. Some places the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 5 to 7 percent.

**Minor Components**

**Woodson**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Upland (pe35-42)

**Eram**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

*General Considerations:* Most areas of this soil is used for cultivated crops and pasture. It is suited to most crops grown in the watershed. Erosion is a serious hazard that can be controlled by contour farming, terraces, or conservation tillage. This soil is well suited to tame grass pasture. The wetness limits the suitability of this soil for engineering uses. The land capability classification is IIIe.

## 2541—Lebo channery silty clay loam, 15 to 30 percent slopes

### Map Unit Composition

Lebo: 85 percent  
 Minor components: 15 percent

### Component Descriptions

**Lebo**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Skeletal loamy residuum weathered from sandstone and shale  
*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 5.6 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

A—0 to 11 inches; channery silty clay loam  
 Bw1—11 to 18 inches; channery silty clay loam  
 Bw2—18 to 28 inches; channery silty clay loam  
 C—28 to 38 inches; very channery silty clay loam  
 Cr—38 to 42 inches; weathered bedrock

*Component note:* The Lebo soils are moderately deep and have moderate permeability. Shrink-swell potential is moderate. In some areas the soil is 10 to 20 inches to limestone bedrock. In some places the dark surface soil is less than 7 inches. Also, included are some areas that have slopes from 31 to 35 percent.

**Minor Components**

**Wagstaff**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

C1—0 to 10 inches; silty clay loam  
 C2—10 to 40 inches; silty clay  
 C3—40 to 60 inches; clay

#### **Eram**

*Composition:* About 5 percent  
*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches  
 to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

### **2741—Mason silt loam, 0 to 2 percent slopes, rarely flooded**

#### **Clareson**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches  
 to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Flats (pe35-42)

#### **Map Unit Composition**

Mason: 85 percent  
 Minor components: 15 percent

#### **Component Descriptions**

##### **Mason**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Stream terrace on valley  
*Parent material:* Fine-silty alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 10.6 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Rare  
*Ponding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Lowland (pe35-42)  
*Land capability (nonirrigated):* 1

### **2700—Orthents, Shallow**

#### **Map Unit Composition**

Orthents: 100 percent

#### **Component Descriptions**

##### **Orthents**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 0 to 8 percent  
*Drainage class:* Poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 6.8 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Land capability (nonirrigated):* 6e

##### *Typical Profile:*

Ap—0 to 6 inches; silt loam  
 A—6 to 15 inches; silt loam  
 Bt1—15 to 34 inches; silty clay loam  
 Bt2—34 to 55 inches; silty clay loam  
 BC—55 to 72 inches; silty clay loam

*Component note:* The Mason series was formerly mapped as the Reading series in the Johnson County Soil Survey. The Mason soils are well drained and have moderately slow permeability. Shrink-swell potential is moderate. In some areas the soil is somewhat poorly drained. In some places the dark surface soil is less than 7 inches. In some places frequent flooding can occur. Also, included are some areas that have slopes from 3 to 5 percent.

##### **Minor Components**

**Verdigris**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Lowland (pe35-42)

#### **Hepler**

*Composition:* About 5 percent  
*Landform:* flood plain on valley  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Loamy Lowland (pe35-42)

#### **Osage**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Lowland (pe35-42)

*General Considerations:* Most areas this soil are cultivated. This soil is well suited to cultivated crops, hay, and pasture. Erosion is a serious hazard that can be controlled by conservation tillage or no-till. Flooding limits the suitability of this soil for many engineering uses. The land capability classification is I.

### **3003—Okemah silt loam, 0 to 3 percent slopes**

#### **Map Unit Composition**

Okemah: 85 percent  
 Minor components: 15 percent

#### **Component Descriptions**

##### **Okemah**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Footslope  
*Parent material:* Silty and clayey colluvium and/or silty and clayey residuum weathered from acid shale  
*Slope:* 0 to 3 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 9.0 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 21 to 26 inches  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 2e

#### *Typical Profile:*

Ap—0 to 8 inches; silt loam  
 A—8 to 12 inches; silt loam  
 BA—12 to 18 inches; silty clay loam  
 Bt1—18 to 24 inches; silty clay  
 Bt2—24 to 52 inches; silty clay  
 BC—52 to 60 inches; silty clay

*Component note:* The Okemah soils are very deep and have slow permeability. Shrink-swell potential is high. In some areas the soil is 40 to 60 inches to bedrock. In some places the dark surface soil is less than 20 inches. Also, included are some areas that have slopes from 4 to 7 percent.

#### **Minor Components**

##### **Woodson**

*Composition:* About 15 percent  
*Slope:* 0 to 3 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Upland (pe35-42)

*General Considerations:* Most areas of this soil are used for cultivated. It is well suited to all crops commonly grown in the watershed. Erosion is a serious hazard that can be controlled by contour farming or conservation tillage. This soil has good potential for hay, tame grasses, and trees. The low strength limits the suitability for many engineering uses. The land capability classification is IIIe.

### **3026—Osage silty clay loam, 0 to 2 percent slopes, occasionally flooded**

#### **Map Unit Composition**

Osage: 85 percent  
 Minor components: 15 percent

#### **Component Descriptions**

##### **Osage**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Flood plain on valley  
*Parent material:* Clayey alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)

*Available water capacity:* Moderate (About 6.6 inches)

*Shrink-swell potential:* Very high (About 17.0 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 0 to 12 inches

*Runoff class:* Very high

*Ecological site:* Clay Lowland (pe35-42)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 6 inches; silty clay loam

A—6 to 17 inches; silty clay loam

Bgss1—17 to 32 inches; silty clay

Bgss2—32 to 50 inches; silty clay

Bg—50 to 60 inches; clay

*Component note:* The Osage soils are very deep and have very slow permeability. Shrink-swell potential is very high. Included in some areas are soils that are moderately well drained. In some places the dark surface soil is less than 10 inches. Also, included are some areas that have slopes from 3 to 5 percent.

### Minor Components

#### Verdigris

*Composition:* About 8 percent

*Landform:* flood plain on valley

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe35-42)

#### Wynona

*Composition:* About 7 percent

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Ecological site:* Loamy Lowland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. Some areas in are pasture or trees. It is well suited to all crops grown in the watershed. Erosion is a serious hazard that can be controlled by conservation tillage or no-till. This soil is well suited for hay land and pasture. Flooding and wetness limits the suitability of this soil for many engineering uses. The land capability classification is 1lw.

## 3028—Osage silty clay, occasionally flooded

### Map Unit Composition

Osage: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Osage

*MLRA:* 112 - Cherokee Prairies

*Landform:* Flood plain on valley

*Parent material:* Clayey alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

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

*Available water capacity:* Moderate (About 6.6 inches)

*Shrink-swell potential:* Very high (About 17.0 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 0 to 12 inches

*Runoff class:* Very high

*Ecological site:* Clay Lowland (pe35-42)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 6 inches; silty clay loam

A—6 to 17 inches; silty clay loam

Bgss1—17 to 32 inches; silty clay

Bgss2—32 to 50 inches; silty clay

Bg—50 to 60 inches; clay

*Component note:* The Osage soils are very deep and have very slow permeability. Shrink-swell potential is very high. Included in some areas are soils that are moderately well drained. In some places the dark surface soil is less than 10 inches. Also, included are some areas that have slopes from 3 to 5 percent.

### Minor Components

#### Verdigris

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe35-42)

#### Wynona

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Ecological site:* Loamy Lowland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. Some areas in are pasture or trees. It is well suited to all crops grown in the watershed. Erosion is a serious hazard that can be controlled by conservation tillage or no-till. This soil is well suited for hay land

and pasture. Flooding and wetness limits the suitability of this soil for many engineering uses. The land capability classification is IIw.

### 3132—Pits, Quarries

#### Map Unit Composition

Pits, Quarries: 100 percent

#### Component Descriptions

##### Pits, Quarries

*MLRA:* 112 - Cherokee Prairies

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

*General Considerations:* Pits are open excavations from which soil and commonly underlying material have been removed, exposing either rock or other material. Kinds include Pits, mine; Pits, gravel; and Pits, quarry. Commonly, pits are closely associated with Dumps.

### 3494—Summit silty clay loam, 1 to 4 percent slopes

*Mapunit Information:* This soil was formerly mapped as Martin in Douglas and Johnson counties.

#### Map Unit Composition

Summit: 85 percent

Minor components: 15 percent

#### Component Descriptions

##### Summit

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Hillslope position:* Backslope, footslope

*Parent material:* Silty and clayey residuum weathered from acid shale

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

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

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

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 24 to 36 inches

*Runoff class:* High

*Ecological site:* Clay Upland (pe35-42)

*Land capability (nonirrigated):* 2e

#### Typical Profile:

A—0 to 9 inches; silty clay loam

Bt1—9 to 17 inches; silty clay

Bt2—17 to 24 inches; silty clay

Bt3—24 to 41 inches; silty clay

Bt4—41 to 61 inches; silty clay

Bt5—61 to 73 inches; silty clay

*Component note:* The Summit series was formerly mapped as Martin in Douglas and Johnson County Soil Surveys. The Summit soils are very deep and have slow permeability. Shrink-swell potential is high. In some areas the soil is 40 to 60 inches to shale bedrock. In some places have dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 5 to 8 percent.

#### Minor Components

##### Kenoma

*Composition:* About 10 percent

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

##### Wagstaff

*Composition:* About 5 percent

*Landform:* hillslope on upland

*Slope:* 1 to 3 percent

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

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. It is well suited to all crops commonly grown in the watershed. Erosion is a serious hazard that can be controlled by terraces, contour farming, or conservation tillage. This soil has good potential for hay, tame grasses, and trees. The wetness limits the suitability of this soil for many engineering uses. The land capability classification is IIe.

### 3495—Summit silty clay loam, 4 to 8 percent slopes

*Mapunit Information:* This soil mapunit was formerly mapped as Martin in Douglas and Johnson counties.

#### Map Unit Composition

Summit: 85 percent  
Minor components: 15 percent

#### Component Descriptions

##### Summit

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey residuum weathered from acid shale  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 8.6 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 21 to 26 inches  
*Runoff class:* Very high  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

##### Typical Profile:

A—0 to 9 inches; silty clay loam  
Bt1—9 to 17 inches; silty clay  
Bt2—17 to 24 inches; silty clay  
Bt3—24 to 41 inches; silty clay  
Bt4—41 to 61 inches; silty clay  
Bt5—61 to 73 inches; silty clay

*Component note:* The Summit series was formerly mapped as Martin in Douglas and Johnson Counties. The Summit soils are very deep and have slow permeability. Shrink-swell potential is high. In some places the soil is 40 to 60 inches to shale bedrock. Some areas the dark soil surface is less than 7 inches thick. Also, included are some areas that have slopes from 9 to 12 percent.

##### Minor Components

##### Wagstaff

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe35-42)

##### Shidler

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Sandstone (pe35-42)

##### Dennis

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of this soil are pasture. This soil is suited for tall fescue and brome grass. Some small areas are cultivated. Erosion is a serious hazard that can be controlled by terraces, contour farming, or conservation tillage. This soil has good potential for hay, tame grasses, and trees. The wetness limits the suitability of this soil for many engineering uses. The land capability classification is IIIe.

### 3815—Verdigris silt loam, 0 to 2 percent slopes, Frequent Flooding

*Mapunit Information:* This soil was formerly mapped as Kennebec in Douglas County and Johnson County. This map unit is adjacent to the stream channel.

#### Map Unit Composition

Verdigris: 85 percent  
Minor components: 15 percent

#### Component Descriptions

##### Verdigris

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Flood plain on valley  
*Parent material:* Fine-silty alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 12.0 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* Frequent

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

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe35-42)

*Land capability (nonirrigated):* 5w

*Typical Profile:*

Ap—0 to 9 inches; silt loam

A1—9 to 27 inches; silt loam

A2—27 to 32 inches; silt loam

AC—32 to 52 inches; silt loam

C—52 to 60 inches; silt loam

*Component note:* The Verdigris series was formerly mapped as the Kennebec series in the Douglas and Johnson County Soil Surveys. The Verdigris soils are very deep and have moderate permeability. Included are some places the dark surface soil is less than 10 inches thick. Also, included are some areas that have slopes from 3 to 5 percent.

### Minor Components

#### Summit

*Composition:* About 10 percent

*Landform:* hillslope on upland

*Slope:* 2 to 8 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

#### Osage

*Composition:* About 5 percent

*Landform:* flood plain on valley

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Lowland (pe35-42)

*General Considerations:* Most areas of this soil are pasture and trees. This soil is suited for pasture or trees. This soil is suited to tall fescue and reed canarygrass. Flooding limits the suitability of this soil for many engineering uses. The land capability classification is Vw.

## 3816—Verdigris silt loam, 0 to 2 percent slopes, occasionally flooded

### Map Unit Composition

Verdigris: 90 percent

Minor components: 10 percent

## Component Descriptions

### Verdigris

*MLRA:* 112 - Cherokee Prairies

*Landform:* Flood plain on valley

*Parent material:* Fine-silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 12.0 inches)

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

*Flooding hazard:* Occasional

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

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe35-42)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 9 inches; silt loam

A1—9 to 27 inches; silt loam

A2—27 to 32 inches; silt loam

AC—32 to 52 inches; silt loam

C—52 to 60 inches; silt loam

*Component note:* The Verdigris series was formerly mapped as the Kennebec series in the Douglas and Johnson County Soil Surveys. The Verdigris soils are very deep and have moderate permeability. Included are some places that have a dark surface soil less than 10 inches thick. Also included are some areas that have slopes from 3 to 5 percent.

### Minor Components

#### Osage

*Composition:* About 10 percent

*Landform:* flood plain on valley

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Lowland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. Some areas are pasture or trees. It is well suited to all crops grown in the watershed. Erosion is a serious hazard that can be controlled by conservation tillage or no-till. This soil is well suited for hay land and pasture. Flooding and wetness limits the suitability of this soil for many engineering uses. The land capability classification is Ilw.

## 3926—Water

## 3929—Welda silt loam, 2 to 5 percent slopes

### Map Unit Composition

Welda: 90 percent  
Minor components: 10 percent

### Component Descriptions

#### Welda

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Upland  
*Hillslope position:* Backslope  
*Parent material:* Fine-silty loess  
*Slope:* 2 to 5 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 11.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Savannah (pe35-42)  
*Land capability (nonirrigated):* 2e

#### Typical Profile:

A—0 to 4 inches; silt loam  
E—4 to 7 inches; silt loam  
BA—7 to 10 inches; silty clay loam  
Bt1—10 to 20 inches; silty clay  
Bt2—20 to 35 inches; silty clay  
BC—35 to 60 inches; silty clay loam

*Component note:* The Welda soils are deep and have slow permeability. Shrink-swell potential is moderate. In some places the soil is 20 to 40 inches to limestone bedrock. Also, included are some areas that have slopes from 6 to 9 percent.

#### Minor Components

##### Wagstaff

*Composition:* About 10 percent  
*Landform:* interfluvium on upland  
*Slope:* 2 to 5 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of this soil are pasture or trees. If, cultivated it is suited to all crops commonly grown in the watershed. Erosion is a serious hazard that

can be controlled by terraces, contour farming, or conservation tillage. This soil is well suited for hay, tame grasses, and trees. The low strength limits the suitability of this soil for many engineering uses. The land capability classification is 1e.

## 3951—Woodson silt loam, 1 to 3 percent slopes

### Map Unit Composition

Woodson: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Woodson

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Paleoterrace on upland  
*Hillslope position:* Summit  
*Parent material:* Silty and clayey alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Moderate (About 8.7 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 4 to 9 inches  
*Runoff class:* Medium  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

#### Typical Profile:

A—0 to 10 inches; silt loam  
Bt1—10 to 21 inches; silty clay  
Bt2—21 to 30 inches; silty clay  
BC—30 to 48 inches; silty clay  
C—48 to 60 inches; silty clay

*Component note:* The Woodson soils are very deep and have very slow permeability. Included are some areas the soils formed in glacial till. In some places the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 0 to 1 percent.

#### Minor Components

##### Kenoma

*Composition:* About 10 percent  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

#### **Summit**

*Composition:* About 5 percent

*Landform:* hillslope on upland

*Slope:* 1 to 3 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. This soil is suited to most crops grown in the watershed. Wetness and seasonal droughtiness can limit crops in some years. Erosion is a slight hazard that can be controlled by conservation tillage or no-tills. This soil is well suited to tame grasses. The wetness limits the suitability of this soil for engineering uses. The land capability classification is IIs.

### **3971—Wagstaff silt loam, 1 to 3 percent slopes**

#### **Map Unit Composition**

Wagstaff: 85 percent

Minor components: 15 percent

#### **Component Descriptions**

##### **Wagstaff**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Hillslope position:* Shoulder, summit

*Parent material:* Silty and clayey residuum weathered from limestone and shale

*Slope:* 1 to 3 percent

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

*Drainage class:* Moderately well drained

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

*Available water capacity:* Low (About 5.5 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 18 to 24 inches

*Runoff class:* High

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 2e

##### *Typical Profile:*

Ap—0 to 7 inches; silt loam

A—7 to 14 inches; silty clay loam

BA—14 to 18 inches; silty clay loam

Bt1—18 to 24 inches; silty clay

Bt2—24 to 33 inches; silty clay

R—33 to 37 inches; unweathered bedrock

*Component note:* The Wagstaff series was formerly mapped as the Oska series in the Johnson County Soil Survey and the Catoosa series in the Miami County Soil Survey. The Wagstaff soils are moderately deep and have slow permeability. Some areas contain soils that are 10 to 20 inches to limestone bedrock. In some places the dark surface soil is less than 7 inches thick. Also included are some areas that have slopes from 3 to 6 percent.

#### **Minor Components**

##### **Bucyrus**

*Composition:* About 10 percent

*Landform:* interfluvial on upland

*Slope:* 1 to 3 percent

*Depth to restrictive feature:* More than 60 inches to bedrock

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe35-42)

#### **Summit**

*Composition:* About 5 percent

*Landform:* interfluvial on upland

*Slope:* 1 to 3 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated or in pasture. Erosion is a serious hazard that can be controlled by conservation tillage, contour farming, or terraces. This soil is well suited to pasture and hayground. The high clay content and depth to bedrock limits the suitability of this soil for many engineering uses. The land capability classification is IIe.

### **3972—Wagstaff silty clay loam, 3 to 6 percent slopes**

#### **Map Unit Composition**

Wagstaff: 85 percent

Minor components: 15 percent

#### **Component Descriptions**

##### **Wagstaff**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Silty and clayey residuum weathered from limestone and shale

*Slope:* 3 to 6 percent

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

*Drainage class:* Moderately well drained

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

*Available water capacity:* Low (About 5.5 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 18 to 24 inches

*Runoff class:* High

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 7 inches; silty clay loam

A—7 to 14 inches; silty clay loam

BA—14 to 18 inches; silty clay loam

Bt1—18 to 24 inches; silty clay

Bt2—24 to 33 inches; silty clay

R—33 to 37 inches; unweathered bedrock

*Component note:* The Wagstaff series was formerly mapped as the Oska series in the Johnson County Soil Survey and the Catoosa series in the Miami County Soil Survey. The Wagstaff soils are moderately deep and have slow permeability. In some places the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 7 to 10 percent.

**Minor Components**

**Shidler**

*Composition:* About 15 percent

*Landform:* hillslope on upland

*Slope:* 4 to 8 percent

*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

*Drainage class:* Well drained

*Ecological site:* Shallow Sandstone (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. It is suited to most crops commonly grown in the watershed. Erosion is a serious hazard that can be controlled by contour farming or conservation tillage. This soil is well suited for hay, tame grasses, and trees. The high clay content and the depth to bedrock limits the suitability of this soil for many engineering uses. The land capability classification is IIIe.

**3973—Wagstaff-Summit silty clay loams, 4 to 8 percent slopes**

**Map Unit Composition**

Wagstaff: 45 percent

Summit: 35 percent

Minor components: 20 percent

**Component Descriptions**

**Wagstaff**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Silty and clayey residuum weathered from limestone and shale

*Slope:* 4 to 8 percent

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

*Drainage class:* Moderately well drained

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

*Available water capacity:* Low (About 5.5 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 18 to 24 inches

*Runoff class:* Very high

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 7 inches; silty clay loam

A—7 to 14 inches; silty clay loam

BA—14 to 18 inches; silty clay loam

Bt1—18 to 24 inches; silty clay

Bt2—24 to 33 inches; silty clay

R—33 to 37 inches; unweathered bedrock

*Component note:* The Wagstaff series was formerly mapped as the Oska series in the Johnson County Soil Survey and the Catoosa series in the Miami County Soil Survey. The Wagstaff soils are moderately deep and slow permeability. In some places the dark surface soil is less than 7 inches. Also, included are some areas that slopes from 9 to 12 percent.

**Summit**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Silty and clayey residuum weathered from acid shale

*Slope:* 4 to 8 percent

*Drainage class:* Moderately well drained

*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 8.6 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 21 to 26 inches  
*Runoff class:* Very high  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

A—0 to 9 inches; silty clay loam  
 Bt1—9 to 17 inches; silty clay  
 Bt2—17 to 24 inches; silty clay  
 Bt3—24 to 41 inches; silty clay  
 Bt4—41 to 61 inches; silty clay  
 Bt5—61 to 73 inches; silty clay

*Component note:* The Summit series was formerly mapped as Martin in Douglas and Johnson County Soil Surveys. In some areas the soil is 40 to 60 inches to shale bedrock. In some places the dark surface soil is less than 7 inches thick. Also, included are some areas that have slopes from 9 to 12 percent.

**Minor Components**

**Eram**

*Composition:* About 10 percent  
*Landform:* interfluvium on hills  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Bucyrus**

*Composition:* About 10 percent  
*Landform:* hillslope on upland  
*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* More than 60 inches to bedrock  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

*General Considerations:* Most areas of these soils are cropland and pasture. These soils are poorly suited for cropland. The available water holding capacity of the Wagstaff soil is low and the Summit soil is high. Erosion is a serious hazard that can be controlled by conservation tillage, contour farming, or waterways. The depth to bedrock limits the suitability of these soils for many engineering uses. The land capability classification is IVe.

**3974—Wynona silt loam, occasionally flooded**

**Map Unit Composition**

Wynona: 85 percent  
 Minor components: 15 percent

**Component Descriptions**

**Wynona**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Flood plain on valley  
*Parent material:* Fine-silty alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 11.4 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* Low  
*Ecological site:* Loamy Lowland (pe35-42)  
*Land capability (nonirrigated):* 3w

*Typical Profile:*

Ap—0 to 10 inches; silt loam  
 A—10 to 14 inches; silty clay loam  
 Bg—14 to 38 inches; silty clay loam  
 Cg—38 to 53 inches; silty clay loam  
 Ab—53 to 60 inches; silty clay loam

*Component note:* The Wynona series was formerly mapped as the Lanton in the Miami County Soil Survey. The Wynona soils are very deep and slow permeability. In some places the soils have a silty clay loam surface texture. Some areas the soils are poorly drained. Also, included are some areas that have slopes from 3 to 5 percent.

**Minor Components**

**Osage**

*Composition:* About 15 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Lowland (pe35-42)

*General Considerations:* Most areas of this soil are cultivated. Some areas are pasture or trees. It is suited to all crops grown in the watershed. Erosion is a serious hazard that can be controlled by conservation tillage or no-till. This soil is well suited for hay land

and pasture. Flooding and wetness limits the suitability of this soil for many engineering uses. the land capability classification is llw.

*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

## **AED—Arents, Earthen Dam**

### **Rock outcrop**

*Composition:* About 3 percent

## **Bb—Bates loam, 1 to 4 percent slopes**

## **Bc—Bates loam, 4 to 8 percent slopes**

### **Map Unit Composition**

Bates: 90 percent  
 Minor components: 10 percent

### **Component Descriptions**

#### **Bates**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Sandy and silty residuum weathered from sandstone over sandy and silty residuum

weathered from sandstone and shale

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

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

*Available water capacity:* Moderate (About 6.4 inches)

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

*Flooding hazard:* None

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

*Runoff class:* Low

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 2e

#### *Typical Profile:*

H1—0 to 10 inches; loam

H2—10 to 31 inches; clay loam

H3—31 to 35 inches; gravelly clay loam

H4—35 to 39 inches; unweathered bedrock

### **Minor Components**

#### **Dennis**

*Composition:* About 4 percent

*Slope:* 1 to 3 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe35-42)

#### **Eram**

*Composition:* About 3 percent

### **Map Unit Composition**

Bates: 85 percent  
 Minor components: 15 percent

### **Component Descriptions**

#### **Bates**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Sandy and silty residuum

weathered from sandstone over sandy and silty residuum

weathered from sandstone and shale

*Slope:* 4 to 8 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

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

*Available water capacity:* Moderate (About 6.2 inches)

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

*Flooding hazard:* None

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

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 3e

#### *Typical Profile:*

H1—0 to 7 inches; loam

H2—7 to 31 inches; clay loam

H3—31 to 35 inches; gravelly clay loam

Cr—35 to 39 inches; unweathered bedrock

### **Minor Components**

#### **Dennis**

*Composition:* About 5 percent

*Slope:* 1 to 3 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe35-42)

**Eram**

*Composition:* About 4 percent  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches  
 to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Rock outcrop**

*Composition:* About 3 percent

**Lebo**

*Composition:* About 3 percent  
*Landform:* hillslope on upland  
*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches  
 to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Minor Components****Clareson**

*Composition:* About 8 percent  
*Landform:* hillslope on upland  
*Slope:* 3 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches  
 to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Flats (pe35-42)

**Eram**

*Composition:* About 7 percent  
*Landform:* hillslope on upland  
*Slope:* 3 to 12 percent  
*Depth to restrictive feature:* 20 to 40 inches  
 to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Cb—Catoosa silt loam, 1 to 3 percent slopes****Map Unit Composition**

Catoosa: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Catoosa**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Ridge on upland  
*Parent material:* Silty and clayey residuum  
 weathered from limestone and shale  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to  
 bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60  
 in/hr)  
*Available water capacity:* Low (About 4.9 inches)  
*Shrink-swell potential:* Moderate (About 4.5  
 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6  
 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 12 inches; silt loam  
 H2—12 to 25 inches; silty clay loam  
 R—25 to 29 inches; unweathered bedrock

**Cm—Clareson-Rock outcrop complex, 2 to 15 percent slopes****Map Unit Composition**

Clareson: 60 percent  
 Rock outcrop: 20 percent  
 Minor components: 20 percent

**Component Descriptions****Clareson**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey residuum  
 weathered from limestone  
*Slope:* 7 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to  
 bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 3.8 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6  
 feet  
*Runoff class:* Very high  
*Ecological site:* Shallow Flats (pe35-42)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 11 inches; silty clay loam  
 H2—11 to 15 inches; very flaggy silty clay  
 loam

H3—15 to 33 inches; extremely flaggy silty clay  
R—33 to 37 inches;

**Rock outcrop**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Ridge on upland

*Hillslope position:* Shoulder

*Drainage class:* Well drained

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

*Land capability (nonirrigated):* 8

**Minor Components****Catoosa**

*Composition:* About 10 percent

*Landform:* hillslope on upland

*Slope:* 1 to 3 percent

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

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe35-42)

**Eram**

*Composition:* About 6 percent

*Landform:* hillslope on upland

*Slope:* 4 to 8 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

**Lebo**

*Composition:* About 4 percent

*Landform:* hillslope on upland

*Slope:* 15 to 30 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe35-42)

*Slope:* 1 to 3 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 10.6 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 12 to 18 inches

*Runoff class:* High

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 2e

**Typical Profile:**

H1—0 to 11 inches; silt loam

H2—11 to 17 inches; silty clay loam

H3—17 to 60 inches; silty clay

**Minor Components****Kenoma**

*Composition:* About 5 percent

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

**Eram**

*Composition:* About 5 percent

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

**Df—Dennis silt loam, 3 to 6 percent slopes****Map Unit Composition**

Dennis: 85 percent

Minor components: 15 percent

**Component Descriptions****Dennis**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey residuum weathered from shale

*Slope:* 3 to 6 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 10.6 inches)

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

*Flooding hazard:* None

**De—Dennis silt loam, 1 to 3 percent slopes****Map Unit Composition**

Dennis: 90 percent

Minor components: 10 percent

**Component Descriptions****Dennis**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey residuum weathered from shale

*Depth to seasonal water saturation:* About 12 to 18 inches

*Runoff class:* Very high

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 10 inches; silt loam

H2—10 to 16 inches; silty clay loam

H3—16 to 60 inches; silty clay

**Minor Components**

**Kenoma**

*Composition:* About 5 percent

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

**Eram**

*Composition:* About 5 percent

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

**Bates**

*Composition:* About 5 percent

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe35-42)

**Ec—Eram silty clay loam, 1 to 4 percent slopes**

**Map Unit Composition**

Eram: 85 percent

Minor components: 15 percent

**Component Descriptions**

**Eram**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey residuum weathered from shale

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Moderately well drained

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

*Available water capacity:* Low (About 4.2 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 6 to 18 inches

*Runoff class:* High

*Ecological site:* Clay Upland (pe35-42)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 9 inches; silty clay loam

H2—9 to 27 inches; silty clay

Cr—27 to 31 inches; weathered bedrock

**Minor Components**

**Bates**

*Composition:* About 5 percent

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe35-42)

**Catoosa**

*Composition:* About 4 percent

*Slope:* 1 to 3 percent

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

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe35-42)

**Dennis**

*Composition:* About 3 percent

*Slope:* 1 to 3 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe35-42)

**Summit**

*Composition:* About 3 percent

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

**Ed—Eram silty clay loam, 4 to 8 percent slopes**

**Map Unit Composition**

Eram: 85 percent

Minor components: 15 percent

**Component Descriptions**

**Eram**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey residuum weathered from shale

*Slope:* 4 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 4.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 6 to 18 inches  
*Runoff class:* Very high  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 9 inches; silty clay loam  
 H2—9 to 27 inches; silty clay  
 Cr—27 to 31 inches; weathered bedrock

**Minor Components**

**Bates**

*Composition:* About 5 percent  
*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Dennis**

*Composition:* About 4 percent  
*Slope:* 1 to 3 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Summit**

*Composition:* About 3 percent  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Lebo**

*Composition:* About 3 percent  
*Landform:* hillslope on upland  
*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Ef—Eram-Lebo silty clay loams, 5 to 20 percent slopes**

**Map Unit Composition**

Eram: 55 percent  
 Lebo: 35 percent

Minor components: 10 percent

**Component Descriptions**

**Eram**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Silty and clayey residuum weathered from shale  
*Slope:* 5 to 12 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 4.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 6 to 18 inches  
*Runoff class:* Very high  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 9 inches; silty clay loam  
 H2—9 to 27 inches; silty clay  
 Cr—27 to 31 inches;

**Lebo**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Loamy residuum weathered from sandstone and shale  
*Slope:* 8 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 6.3 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 12 inches; silty clay loam  
 H2—12 to 28 inches; channery silty clay loam  
 H3—28 to 38 inches;  
 Cr—38 to 42 inches;

**Minor Components****Clareson**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 7 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches  
to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Flats (pe35-42)

**Dennis**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 2 to 5 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Gc—Grundy silt loam, 1 to 3 percent slopes****Map Unit Composition**

Grundy: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Grundy**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Silty and clayey loess  
*Slope:* 1 to 3 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 8.7 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe30-37)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 11 inches; silt loam  
 H2—11 to 16 inches; silty clay loam  
 H3—16 to 60 inches; silty clay  
 H4—60 to 64 inches; silty clay loam

**Minor Components****Newtonia**

*Composition:* About 5 percent  
*Slope:* 1 to 4 percent

*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Kenoma**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Hp—Hepler silt loam, 0 to 2 percent slopes, occasionally flooded****Map Unit Composition**

Hepler: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Hepler**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Flood plain on river valley  
*Parent material:* Fine-silty alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 11.7 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* About 12 to 36 inches  
*Runoff class:* Low  
*Ecological site:* Loamy Lowland (pe35-42)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 25 inches; silt loam  
 H2—25 to 40 inches; silty clay loam  
 H3—40 to 60 inches; silty clay loam

**Minor Components****Mason**

*Composition:* About 10 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe35-42)

**Ke—Kenoma silt loam, 1 to 4 percent slopes****Map Unit Composition**

Kenoma: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Kenoma**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Loess over ancient clayey alluvium and/or residuum weathered from limestone and shale

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

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

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

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

*Flooding hazard:* None

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

*Runoff class:* Very high

*Ecological site:* Clay Upland (pe35-42)

*Land capability (nonirrigated):* 3e

**Typical Profile:**

H1—0 to 10 inches; silt loam  
 H2—10 to 58 inches; silty clay  
 H3—58 to 60 inches; silty clay

**Minor Components****Dennis**

*Composition:* About 5 percent

*Slope:* 1 to 3 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe35-42)

**Eram**

*Composition:* About 5 percent

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe35-42)

**Catoosa**

*Composition:* About 5 percent

*Slope:* 1 to 3 percent

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

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe35-42)

**La—Lanton silt loam, occasionally flooded****Map Unit Composition**

Lanton: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Lanton**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Flood plain on valley

*Parent material:* Silty and clayey alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

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

*Available water capacity:* High (About 11.5 inches)

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

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 9 to 14 inches

*Runoff class:* High

*Ecological site:* Loamy Lowland (pe35-42)

*Land capability (nonirrigated):* 2w

**Typical Profile:**

H1—0 to 14 inches; silt loam  
 H2—14 to 53 inches; silt loam  
 H3—53 to 60 inches; silty clay loam

**Minor Components****Osage**

*Composition:* About 10 percent

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Ecological site:* Clay Lowland (pe35-42)

**Lb—Lebo channery silty clay loam, 15 to 30 percent slopes****Map Unit Composition**

Lebo: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Lebo**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Loamy residuum weathered from sandstone and shale  
*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 5.8 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 11 inches; channery silty clay loam  
H2—11 to 28 inches; channery silty clay loam  
H3—28 to 38 inches;  
Cr—38 to 42 inches;

**Minor Components**

**Clareson**

*Composition:* About 8 percent  
*Landform:* hillslope on upland  
*Slope:* 3 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Flats (pe35-42)

**Eram**

*Composition:* About 7 percent  
*Landform:* hillslope on upland  
*Slope:* 5 to 12 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Lu—Lula silt loam, 0 to 3 percent slopes**

**Map Unit Composition**

Lula: 85 percent  
Minor components: 15 percent

**Component Descriptions**

**Lula**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Hillslope position:* Summit  
*Parent material:* Residuum weathered from limestone  
*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 8.8 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 13 inches; silt loam  
H2—13 to 18 inches; silty clay loam  
H3—18 to 49 inches; silty clay loam  
R—49 to 57 inches; unweathered bedrock

**Minor Components**

**Catoosa**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Clareson**

*Composition:* About 5 percent  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Shallow Flats (pe35-42)

**Kenoma**

*Composition:* About 5 percent  
*Slope:* 0 to 3 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**M-W—Miscellaneous Water**

**Mb—Mason silt loam, 0 to 2 percent slopes, rarely flooded****Map Unit Composition**

Mason: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Mason**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Stream terrace on river valley  
*Parent material:* Fine-silty alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 10.6 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Rare  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Lowland (pe35-42)  
*Land capability (nonirrigated):* 1

*Typical Profile:*

H1—0 to 18 inches; silt loam  
 H2—18 to 60 inches; silty clay loam

**Minor Components****Verdigris**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe35-42)

**Osage**

*Composition:* About 5 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Clay Lowland (pe35-42)

**Hepler**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Loamy Lowland (pe35-42)

**Nf—Newtonia silt loam, 0 to 1 percent slopes****Map Unit Composition**

Newtonia: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Newtonia**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Fine-silty loess over silty and clayey residuum  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 10.9 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Negligible  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 1

*Typical Profile:*

H1—0 to 13 inches; silt loam  
 H2—13 to 26 inches; silty clay loam  
 H3—26 to 40 inches; silty clay loam  
 H4—40 to 60 inches; silty clay

**Minor Components****Grundy**

*Composition:* About 5 percent  
*Slope:* 1 to 3 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Upland (pe30-37)

**Kenoma**

*Composition:* About 5 percent  
*Landform:* hillslope on upland  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**Ng—Newtonia silt loam, 1 to 4 percent slopes****Map Unit Composition**

Newtonia: 90 percent  
Minor components: 10 percent

**Component Descriptions****Newtonia**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Fine-silty loess over silty and clayey residuum

*Slope:* 1 to 4 percent

*Drainage class:* Well drained

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

*Available water capacity:* High (About 10.9 inches)

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

*Flooding hazard:* None

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

*Runoff class:* Low

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 2e

**Typical Profile:**

H1—0 to 13 inches; silt loam

H2—13 to 26 inches; silty clay loam

H3—26 to 40 inches; silty clay loam

H4—40 to 60 inches; silty clay

**Minor Components****Grundy**

*Composition:* About 5 percent

*Slope:* 1 to 3 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Upland (pe30-37)

**Welda**

*Composition:* About 5 percent

*Landform:* upland

*Slope:* 2 to 5 percent

*Drainage class:* Well drained

*Ecological site:* Savannah (pe35-42)

**Nh—Newtonia silt loam, 4 to 8 percent slopes****Map Unit Composition**

Newtonia: 85 percent  
Minor components: 15 percent

**Component Descriptions****Newtonia**

*MLRA:* 112 - Cherokee Prairies

*Landform:* Hillslope on upland

*Parent material:* Fine-silty loess over silty and clayey residuum

*Slope:* 4 to 8 percent

*Drainage class:* Well drained

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

*Available water capacity:* High (About 10.9 inches)

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

*Flooding hazard:* None

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

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 3e

**Typical Profile:**

H1—0 to 13 inches; silt loam

H2—13 to 26 inches; silty clay loam

H3—26 to 40 inches; silty clay loam

H4—40 to 60 inches; silty clay

**Minor Components****Grundy**

*Composition:* About 15 percent

*Slope:* 1 to 3 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Upland (pe30-37)

**Oh—Okemah silt loam, 0 to 3 percent slopes****Map Unit Composition**

Okemah: 90 percent  
Minor components: 10 percent

**Component Descriptions**

**Okemah***MLRA:* 112 - Cherokee Prairies*Landform:* Hillslope on upland*Parent material:* Silty and clayey colluvium and/or silty and clayey residuum weathered from

clayey shale

*Slope:* 0 to 3 percent*Drainage class:* Moderately well drained*Slowest permeability:* Slow (About 0.06 in/hr)*Available water capacity:* Moderate (About 9.0 inches)*Shrink-swell potential:* High (About 7.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* About 12 to 24 inches*Runoff class:* High*Ecological site:* Loamy Upland (pe35-42)*Land capability (nonirrigated):* 1*Typical Profile:*

H1—0 to 12 inches; silt loam

H2—12 to 18 inches; silty clay

H3—18 to 60 inches; silty clay

**Minor Components****Woodson***Composition:* About 10 percent*Slope:* 0 to 2 percent*Drainage class:* Somewhat poorly drained*Ecological site:* Clay Upland (pe35-42)**Ot—Osage silty clay loam, 0 to 2 percent slopes, occasionally flooded****Map Unit Composition**

Osage: 85 percent

Minor components: 15 percent

**Component Descriptions****Osage***MLRA:* 112 - Cherokee Prairies*Landform:* Flood plain on river valley*Parent material:* Clayey alluvium*Slope:* 0 to 1 percent*Drainage class:* Poorly drained*Slowest permeability:* Very slow (About 0.00 in/hr)*Available water capacity:* Moderate (About 8.6 inches)*Shrink-swell potential:* Very high (About 17.0 LEP)*Flooding hazard:* Occasional*Depth to seasonal water saturation:* About 0 to 12 inches*Runoff class:* High*Ecological site:* Clay Lowland (pe35-42)*Land capability (nonirrigated):* 2w*Typical Profile:*

H1—0 to 23 inches; silty clay loam

H2—23 to 60 inches; clay

**Minor Components****Lanton***Composition:* About 8 percent*Slope:* 0 to 1 percent*Drainage class:* Somewhat poorly drained*Ecological site:* Loamy Lowland (pe35-42)**Verdigris***Composition:* About 7 percent*Slope:* 0 to 2 percent*Drainage class:* Well drained*Ecological site:* Loamy Lowland (pe35-42)**Ov—Osage silty clay, occasionally flooded****Map Unit Composition**

Osage: 90 percent

Minor components: 10 percent

**Component Descriptions****Osage***MLRA:* 112 - Cherokee Prairies*Landform:* Flood plain on river valley*Parent material:* Clayey alluvium*Slope:* 0 to 1 percent*Drainage class:* Poorly drained*Slowest permeability:* Very slow (About 0.00 in/hr)*Available water capacity:* Moderate (About 6.4 inches)*Shrink-swell potential:* Very high (About 17.0 LEP)*Flooding hazard:* Occasional*Ponding hazard:* Occasional*Depth to seasonal water saturation:* About 2 to 9 inches*Runoff class:* Very high*Ecological site:* Clay Lowland (pe35-42)

*Land capability (nonirrigated):* 3w

*Typical Profile:*

H1—0 to 17 inches; silty clay  
H2—17 to 60 inches; silty clay

**Minor Components**

**Verdigris**

*Composition:* About 10 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe35-42)

**Pc—Parsons silt loam, 0 to 2 percent slopes**

**Map Unit Composition**

Parsons: 90 percent  
Minor components: 10 percent

**Component Descriptions**

**Parsons**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Paleoterrace on upland  
*Parent material:* Loess over ancient clayey alluvium and/or residuum weathered from shale  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* High (About 9.1 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 6 to 18 inches  
*Runoff class:* High  
*Ecological site:* Clay Lowland (pe35-42)  
*Land capability (nonirrigated):* 2s

*Typical Profile:*

H1—0 to 14 inches; silt loam  
H2—14 to 60 inches; silty clay

**Minor Components**

**Dennis**

*Composition:* About 5 percent  
*Slope:* 1 to 3 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Zaar**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Upland (pe35-42)

**Po—Pits, Quarries**

**Map Unit Composition**

Pits: 100 percent

**Component Descriptions**

**Pits**

*MLRA:* 112 - Cherokee Prairies  
*Depth to seasonal water saturation:* More than 6 feet

**Sn—Summit silty clay loam, 1 to 4 percent slopes**

**Map Unit Composition**

Summit: 85 percent  
Minor components: 15 percent

**Component Descriptions**

**Summit**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Silty and clayey residuum weathered from calcareous shale  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Moderate (About 8.1 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 24 to 36 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 11 inches; silty clay loam  
H2—11 to 24 inches; silty clay

H3—24 to 33 inches; silty clay  
H4—33 to 60 inches; silty clay

### Minor Components

#### Catoosa

*Composition:* About 15 percent  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches  
to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

### So—Summit silty clay loam, 4 to 8 percent slopes

#### Map Unit Composition

Summit: 85 percent  
Minor components: 15 percent

#### Component Descriptions

##### Summit

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Silty and clayey residuum  
weathered from calcareous shale  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Very slow (About 0.00  
in/hr)  
*Available water capacity:* Moderate (About 7.7  
inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 24 to  
36 inches  
*Runoff class:* Very High  
*Ecological site:* Clay Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

##### Typical Profile:

H1—0 to 9 inches; silty clay loam  
H2—11 to 24 inches; silty clay  
H3—24 to 33 inches; silty clay  
H4—33 to 60 inches; silty clay

### Minor Components

#### Catoosa

*Composition:* About 10 percent  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches  
to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

### Dennis

*Composition:* About 5 percent  
*Slope:* 3 to 6 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

### Vb—Verdigris silt loam, 0 to 2 percent slopes, occasionally flooded

#### Map Unit Composition

Verdigris: 90 percent  
Minor components: 10 percent

#### Component Descriptions

##### Verdigris

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Flood plain on river valley  
*Parent material:* Fine-silty alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60  
in/hr)  
*Available water capacity:* Very high (About 12.4  
inches)  
*Shrink-swell potential:* Moderate (About 4.5  
LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* More than 6  
feet  
*Runoff class:* Low  
*Ecological site:* Loamy Lowland (pe35-42)  
*Land capability (nonirrigated):* 2w

##### Typical Profile:

H1—0 to 32 inches; silt loam  
H2—32 to 60 inches; silt loam

### Minor Components

#### Osage

*Composition:* About 10 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Clay Lowland (pe35-42)

**Vc—Verdigris silt loam, 0 to 2 percent slopes, frequently flooded****Map Unit Composition**

Verdigris: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Verdigris**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Flood plain on river valley  
*Parent material:* Fine-silty alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 11.9 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Lowland (pe35-42)  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 9 inches; silt loam  
 H2—9 to 32 inches; silt loam  
 H3—32 to 52 inches; silt loam  
 H4—52 to 60 inches; silt loam

**Minor Components****Osage**

*Composition:* About 10 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Ecological site:* Clay Lowland (pe35-42)

**Summit**

*Composition:* About 5 percent  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe35-42)

**W—Water****We—Welda silt loam, 2 to 5 percent slopes****Map Unit Composition**

Welda: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Welda**

*MLRA:* 112 - Cherokee Prairies  
*Landform:* Stream terrace on valley  
*Parent material:* Silty and clayey loess  
*Slope:* 2 to 5 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 11.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Savannah (pe35-42)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 7 inches; silt loam  
 H2—7 to 35 inches; silty clay  
 H3—35 to 60 inches; silty clay loam

**Minor Components****Catoosa**

*Composition:* About 10 percent  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Wo—Woodson silt loam, 0 to 2 percent slopes****Map Unit Composition**

Woodson: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Woodson**

**MLRA:** 112 - Cherokee Prairies

**Landform:** Interfluvium on upland

**Parent material:** Silty and clayey alluvium over silty and clayey residuum weathered from clayey

shale

**Slope:** 0 to 2 percent

**Drainage class:** Somewhat poorly drained

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

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

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

**Flooding hazard:** None

**Depth to seasonal water saturation:** About 4 to 9 inches

**Runoff class:** High

**Ecological site:** Clay Upland (pe35-42)

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

**Typical Profile:**

H1—0 to 7 inches; silt loam

H2—7 to 40 inches; silty clay

H3—40 to 60 inches; silty clay

**Minor Components**

**Summit**

**Composition:** About 8 percent

**Landform:** hillslope on upland

**Slope:** 1 to 4 percent

**Drainage class:** Moderately well drained

**Ecological site:** Clay Upland (pe35-42)

**Okemah**

**Composition:** About 7 percent

**Landform:** hillslope on upland

**Slope:** 0 to 3 percent

**Drainage class:** Moderately well drained

**Ecological site:** Loamy Upland (pe35-42)