

Bobbie Walthall

From: Nuts2sell@aol.com
Sent: Wednesday, August 06, 2008 7:25 AM
To: Bobbie Walthall
Subject: Airport Industrial Park
Attachments: Airport Area.pdf

Ms. Walthall:

Re: Airport Industrial Park

Attached is a copy of the USDA-NRCS Custom Soil Resource Report for the Lawrence Airport area (48pp).

I am submitting this for the City Commission concerning the Pine-Santaularia combined applications for rezoning and annexation, the so-called Airport Industrial Park, which I am informed is scheduled for the August 19 agenda. If you please, could you make this part of that file available to the Commissioners and the public. It is my intention to refer to this government study in my comments.

Could you please confirm that this has been received and filed in good order by return email.

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Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

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

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

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

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

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

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

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

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

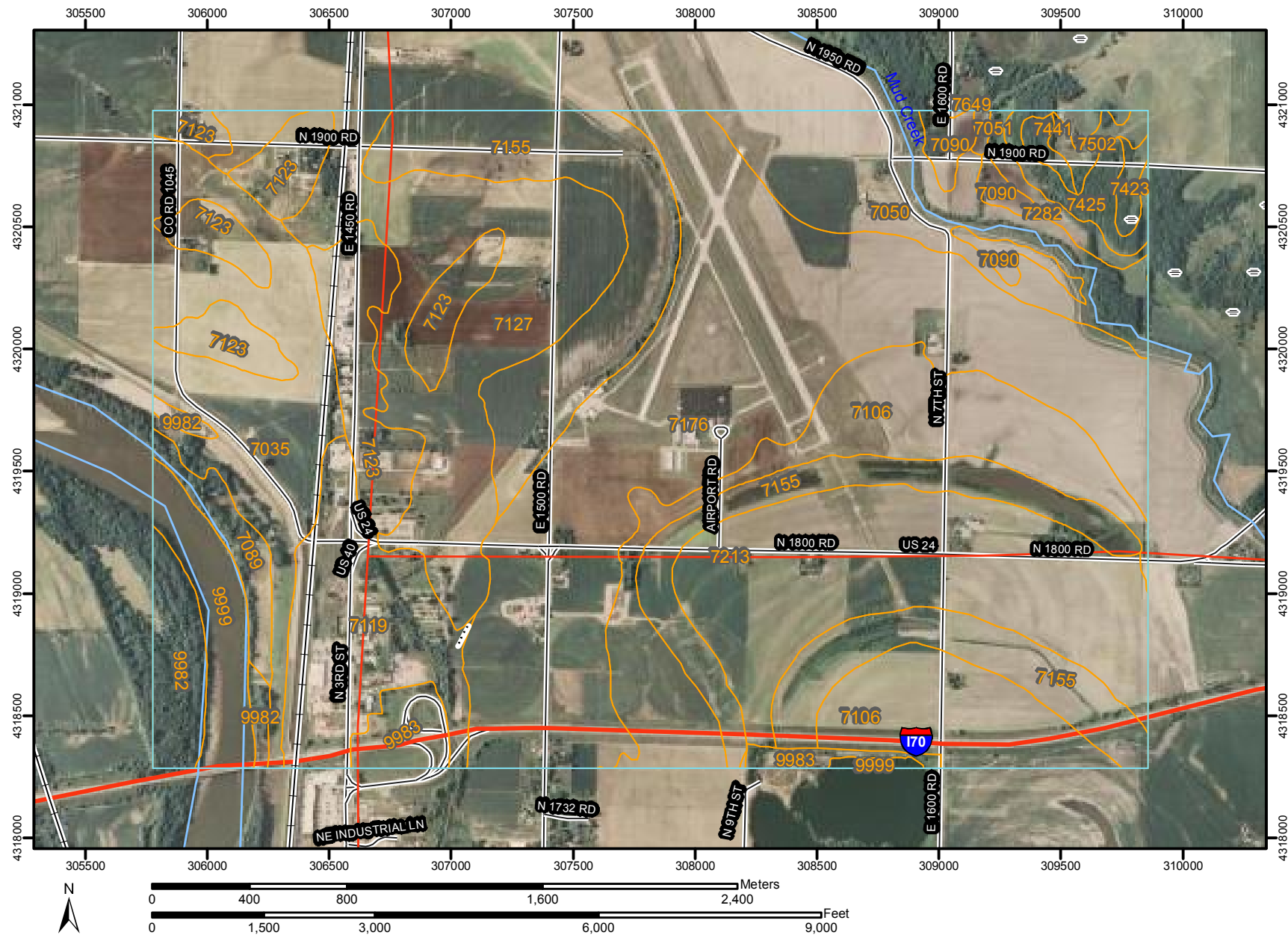
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

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

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


305500	306000	306500	307000	307500	308000	308500	309000	309500	310000
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Custom Soil Resource Report Legend

MAP LEGEND






















Area of Interest (AOI)




 Area of Interest (AOI)

Soils




 Soil Map Units

Special Point Features

 Blowout
 Borrow Pit
 Clay Spot
 Closed Depression
 Gravel Pit
 Gravelly Spot
 Landfill
 Lava Flow
 Marsh
 Mine or Quarry
 Miscellaneous Water
 Perennial Water
 Rock Outcrop
 Saline Spot
 Sandy Spot
 Severely Eroded Spot
 Sinkhole
 Slide or Slip
 Sodic Spot
 Spoil Area
 Stony Spot



 Very Stony Spot
 Wet Spot
 Other

Special Line Features



 Gully
 Short Steep Slope
 Other

Political Features

Municipalities

 Cities
 Urban Areas






Water Features

 Oceans
 Streams and Canals

Transportation

 Rails

Roads

 Interstate Highways
 US Routes
 State Highways
 Local Roads
 Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 15N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Douglas County, Kansas
Survey Area Data: Version 5, Dec 21, 2007

Date(s) aerial images were photographed: 1991

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Douglas County, Kansas (KS045)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7035	Eudora-Bismarckgrove fine sandy loams, overwash, occasionally flooded	192.1	7.1%
7050	Kennebec silt loam, occasionally flooded	152.2	5.6%
7051	Kennebec silt loam, frequently flooded	2.7	0.1%
7089	Stonehouse-Eudora fine sandy loams, overwash, occasionally flooded	30.5	1.1%
7090	Wabash silty clay loam, occasionally flooded	29.7	1.1%
7106	Eudora-Bismarckgrove silt loams, rarely flooded	286.2	10.6%
7119	Eudora-Urban land complex, rarely flooded	144.2	5.3%
7123	Eudora silt loam, rarely flooded	177.8	6.6%
7127	Eudora-Kimo complex, overwash, rarely flooded	269.7	9.9%
7155	Kimo silty clay loam, rarely flooded	354.4	13.1%
7176	Rossville silt loam, very rarely flooded	566.6	20.9%
7213	Reading silt loam, moderately wet, very rarely flooded	271.9	10.0%
7282	Konawa fine sandy loam, 8 to 12 percent slopes	16.3	0.6%
7423	Morrill clay loam, 3 to 7 percent slopes	8.7	0.3%
7425	Morrill clay loam, 7 to 12 percent slopes	32.5	1.2%
7441	Morrill-gravelly loam, 4 to 20 percent slopes, stony	7.2	0.3%
7502	Pawnee clay loam, 3 to 6 percent slopes	12.7	0.5%
7649	Thurman complex, 4 to 10 percent slopes	0.5	0.0%
9982	Fluvents, frequently flooded	55.1	2.0%
9983	Gravel pits and quarries	38.4	1.4%
9999	Water	62.0	2.3%
Totals for Area of Interest (AOI)		2,711.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

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

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

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly

indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

**Douglas County, Kansas Version date:12/21/2007
7:33:37 AM**

**7035—Eudora-Bismarckgrove fine sandy loams, overwash,
occasionally flooded**

Map Unit Setting

Elevation: 750 to 980 feet

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 52 to 55 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Eudora and similar soils: 55 percent

Bismarckgrove and similar soils: 25 percent

Minor components: 20 percent

Description of Eudora

Setting

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty alluvium

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately
high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water capacity: High (about 11.1 inches)

Interpretive groups

Land capability (nonirrigated): 2w

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 7 inches: Fine sandy loam

7 to 14 inches: Silt loam

14 to 40 inches: Silt loam

40 to 48 inches: Silt loam

48 to 80 inches: Very fine sandy loam

Description of Bismarckgrove

Setting

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

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Across-slope shape: Linear
Parent material: Silty alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: High (about 10.6 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 6 inches: Fine sandy loam
6 to 14 inches: Silty clay loam
14 to 19 inches: Silty clay loam
19 to 29 inches: Silt loam
29 to 44 inches: Silt loam
44 to 80 inches: Stratified loamy fine sand to fine sandy loam

Minor Components

Bourbonais

Percent of map unit: 10 percent
Landform: Flood-plain steps
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)
Other vegetative classification: CLAY LOWLAND (PE30-37) (106XY004KS_1)

Kimo

Percent of map unit: 5 percent
Landform: Meander scars on flood-plain steps
Other vegetative classification: CLAY LOWLAND (PE30-37) (106XY004KS_1)

Stonehouse

Percent of map unit: 5 percent
Landform: Flood-plain steps
Ecological site: Sandy Lowland (PE 30-37) (R106XY023KS)

Aquolls

Percent of map unit:
Landform: Depressions, drainageways, hillslopes
Down-slope shape: Concave
Across-slope shape: Concave

7050—Kennebec silt loam, occasionally flooded

Map Unit Setting

Elevation: 400 to 1,300 feet

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Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 45 to 64 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Kennebec and similar soils: 95 percent
Minor components: 4 percent

Description of Kennebec

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-silty alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 40 to 44 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: Very high (about 12.8 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Loamy Lowland (Draft) (PE 35-42) (R112XY013KS)

Typical profile

0 to 10 inches: Silt loam
10 to 36 inches: Silt loam
36 to 48 inches: Silt loam
48 to 60 inches: Silt loam

Minor Components

Wabash

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Aquolls, ponded

Percent of map unit:
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave

7051—Kennebec silt loam, frequently flooded

Map Unit Setting

Elevation: 400 to 2,000 feet

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Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Kennebec and similar soils: 88 percent
Minor components: 12 percent

Description of Kennebec

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 40 to 44 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water capacity: Very high (about 12.8 inches)

Interpretive groups

Land capability (nonirrigated): 5w
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 10 inches: Silt loam
10 to 22 inches: Silty clay loam
22 to 38 inches: Silty clay loam
38 to 60 inches: Silty clay loam

Minor Components

Wabash

Percent of map unit: 3 percent
Landform: Flood plains
Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Vinland

Percent of map unit: 3 percent
Landform: Hillslopes
Ecological site: Loamy Upland (Draft) (PE 35-42) (R112XY015KS)

Sogn

Percent of map unit: 3 percent
Landform: Hillslopes
Ecological site: Shallow Limy (PE 35-42) (R112XY028KS)

Martin

Percent of map unit: 3 percent
Landform: Hillslopes

Custom Soil Resource Report

Ecological site: Loamy Upland (Draft) (PE 35-42) (R112XY015KS)

Aquolls, ponded

Percent of map unit:

Landform: Depressions

Down-slope shape: Concave

Across-slope shape: Concave

Aquolls

Percent of map unit:

Landform: Depressions, drainageways, hillslopes

Down-slope shape: Concave

Across-slope shape: Concave

7089—Stonehouse-Eudora fine sandy loams, overwash, occasionally flooded

Map Unit Setting

Elevation: 750 to 980 feet

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 52 to 55 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Stonehouse and similar soils: 50 percent

Eudora and similar soils: 30 percent

Minor components: 20 percent

Description of Stonehouse

Setting

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy alluvium

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water capacity: Low (about 5.4 inches)

Interpretive groups

Land capability (nonirrigated): 4s

Ecological site: Sandy Lowland (PE 30-37) (R106XY023KS)

Typical profile

0 to 9 inches: Fine sandy loam

9 to 23 inches: Loamy fine sand

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23 to 31 inches: Stratified loamy sand
31 to 45 inches: Stratified fine sand
45 to 71 inches: Stratified sandy loam
71 to 80 inches: Stratified loamy fine sand

Description of Eudora

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: High (about 11.1 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 7 inches: Fine sandy loam
7 to 14 inches: Silt loam
14 to 40 inches: Silt loam
40 to 48 inches: Silt loam
48 to 80 inches: Very fine sandy loam

Minor Components

Kimo

Percent of map unit: 10 percent
Landform: Meander scars on flood-plain steps
Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Bourbonais

Percent of map unit: 5 percent
Landform: Flood-plain steps
Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Bismarckgrove

Percent of map unit: 5 percent
Landform: Flood-plain steps
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Aquolls

Percent of map unit:

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Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

7090—Wabash silty clay loam, occasionally flooded

Map Unit Setting

Elevation: 400 to 1,300 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Wabash and similar soils: 91 percent
Minor components: 9 percent

Description of Wabash

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 2 to 9 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability (nonirrigated): 3w
Ecological site: Loamy Lowland (PE 30-37) (R106XY019KS)
Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Typical profile

0 to 5 inches: Silty clay loam
5 to 16 inches: Silty clay loam
16 to 52 inches: Silty clay
52 to 70 inches: Silty clay

Minor Components

Kennebec

Percent of map unit: 6 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Reading

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Ecological site: Loamy Lowland (Draft) (PE 35-42) (R112XY013KS)

7106—Eudora-Bismarckgrove silt loams, rarely flooded

Map Unit Setting

Elevation: 800 to 1,050 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Eudora and similar soils: 55 percent
Bismarckgrove and similar soils: 30 percent
Minor components: 15 percent

Description of Eudora

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: High (about 11.8 inches)

Interpretive groups

Land capability (nonirrigated): 1
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 7 inches: Silt loam
7 to 14 inches: Silt loam
14 to 40 inches: Silt loam
40 to 48 inches: Silt loam
48 to 80 inches: Very fine sandy loam

Description of Bismarckgrove

Setting

Landform: Terraces
Landform position (three-dimensional): Tread

Custom Soil Resource Report

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: High (about 11.2 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 6 inches: Silt loam
6 to 14 inches: Silty clay loam
14 to 19 inches: Silty clay loam
19 to 29 inches: Silt loam
29 to 44 inches: Silt loam
44 to 80 inches: Stratified loamy fine sand to fine sandy loam

Minor Components

Bourbonais

Percent of map unit: 5 percent
Landform: Flood-plain steps
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)
Other vegetative classification: CLAY LOWLAND (PE30-37) (106XY004KS_1)

Kimo

Percent of map unit: 5 percent
Landform: Meander scars on flood-plain steps
Landform position (three-dimensional): Tread
Other vegetative classification: CLAY LOWLAND (PE30-37) (106XY004KS_1)

Stonehouse

Percent of map unit: 5 percent
Landform: Flood-plain steps
Ecological site: Sandy Lowland (PE 30-37) (R106XY023KS)

7119—Eudora-Urban land complex, rarely flooded

Map Unit Setting

Elevation: 750 to 980 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Eudora and similar soils: 45 percent

Urban land: 40 percent

Minor components: 15 percent

Description of Eudora

Setting

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty alluvium

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water capacity: High (about 11.8 inches)

Interpretive groups

Land capability (nonirrigated): 2w

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 7 inches: Silt loam

7 to 14 inches: Silt loam

14 to 40 inches: Silt loam

40 to 48 inches: Silt loam

48 to 80 inches: Very fine sandy loam

Description of Urban Land

Setting

Landform: Terraces

Down-slope shape: Linear

Across-slope shape: Linear

Properties and qualities

Slope: 0 to 1 percent

Frequency of flooding: Rare

Interpretive groups

Land capability (nonirrigated): 8

Minor Components

Bismarckgrove

Percent of map unit: 15 percent

Landform: Flood-plain steps

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

7123—Eudora silt loam, rarely flooded

Map Unit Setting

Elevation: 800 to 1,050 feet

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 52 to 55 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Eudora and similar soils: 85 percent

Minor components: 15 percent

Description of Eudora

Setting

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty alluvium

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water capacity: High (about 11.8 inches)

Interpretive groups

Land capability (nonirrigated): 1

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 7 inches: Silt loam

7 to 14 inches: Silt loam

14 to 40 inches: Silt loam

40 to 48 inches: Silt loam

48 to 80 inches: Very fine sandy loam

Minor Components

Bismarckgrove

Percent of map unit: 10 percent

Landform: Flood-plain steps

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Bourbonais

Percent of map unit: 5 percent

Landform: Flood-plain steps

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Aquolls, ponded

Percent of map unit:
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave

Aquolls

Percent of map unit:
Landform: Depressions, drainageways, hillslopes
Down-slope shape: Concave
Across-slope shape: Concave

7127—Eudora-Kimo complex, overwash, rarely flooded

Map Unit Setting

Elevation: 400 to 1,200 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Eudora and similar soils: 60 percent
Kimo and similar soils: 30 percent
Minor components: 10 percent

Description of Eudora

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: Very high (about 12.2 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 12 inches: Silt loam
12 to 72 inches: Silt loam

Description of Kimo

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey over loamy alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 22 to 26 inches
Frequency of flooding: Rare
Frequency of ponding: Occasional
Available water capacity: High (about 11.4 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)
Other vegetative classification: CLAY LOWLAND (PE30-37) (106XY004KS_1)

Typical profile

0 to 6 inches: Silty clay loam
6 to 28 inches: Silty clay
28 to 60 inches: Silt loam

Minor Components

Sarpy

Percent of map unit: 5 percent
Landform: Flood plains
Ecological site: Sandy Lowland (PE 30-37) (R106XY023KS)

Wabash

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Other vegetative classification: CLAY LOWLAND (PE30-37) (106XY004KS_1)

7155—Kimo silty clay loam, rarely flooded

Map Unit Setting

Elevation: 750 to 980 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Kimo and similar soils: 85 percent
Minor components: 15 percent

Description of Kimo

Setting

Landform: Meander scars on terraces

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Clayey over loamy alluvium

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 22 to 26 inches

Frequency of flooding: Rare

Frequency of ponding: Occasional

Calcium carbonate, maximum content: 5 percent

Available water capacity: High (about 11.4 inches)

Interpretive groups

Land capability (nonirrigated): 2w

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 7 inches: Silty clay loam

7 to 15 inches: Silty clay

15 to 23 inches: Silty clay loam

23 to 27 inches: Silty clay loam

27 to 60 inches: Silt loam

60 to 80 inches: Silt loam

Minor Components

Eudora

Percent of map unit: 5 percent

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Bismarckgrove

Percent of map unit: 5 percent

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Kiro

Percent of map unit: 5 percent

Landform: Depressions on flood-plain steps

Down-slope shape: Concave

Across-slope shape: Concave

Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

7176—Rossville silt loam, very rarely flooded

Map Unit Setting

Elevation: 920 to 1,080 feet

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 52 to 55 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Rossville and similar soils: 85 percent

Minor components: 15 percent

Description of Rossville

Setting

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine-silty alluvium

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Very rare

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Gypsum, maximum content: 5 percent

Available water capacity: Very high (about 13.0 inches)

Interpretive groups

Land capability (nonirrigated): 1

Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Typical profile

0 to 7 inches: Silt loam

7 to 14 inches: Silt loam

14 to 21 inches: Silt loam

21 to 39 inches: Silt loam

39 to 57 inches: Silt loam

57 to 80 inches: Silt loam

Minor Components

Reading

Percent of map unit: 5 percent

Landform: Flood-plain steps

Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Muscotah

Percent of map unit: 5 percent

Custom Soil Resource Report

Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Eudora

Percent of map unit: 5 percent
Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

7213—Reading silt loam, moderately wet, very rarely flooded

Map Unit Setting

Elevation: 920 to 1,080 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Reading and similar soils: 85 percent
Minor components: 15 percent

Description of Reading

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-silty alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 40 to 44 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Available water capacity: High (about 11.6 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)
Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Typical profile

0 to 8 inches: Silt loam
8 to 14 inches: Silt loam
14 to 21 inches: Silty clay loam
21 to 29 inches: Silty clay loam
29 to 42 inches: Silty clay loam
42 to 60 inches: Silty clay loam
60 to 80 inches: Silty clay loam

Minor Components

Muscotah

Percent of map unit: 5 percent
Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

Rossville

Percent of map unit: 5 percent
Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Other vegetative classification: CLAY LOWLAND (PE30-37)
(106XY004KS_1)

Muscotah

Percent of map unit: 5 percent
Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Ecological site: Loamy Lowland (PE 30-37) (R106XY013KS)

7282—Konawa fine sandy loam, 8 to 12 percent slopes

Map Unit Setting

Elevation: 1,000 to 1,200 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 43 to 66 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Konawa and similar soils: 90 percent
Minor components: 10 percent

Description of Konawa

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy glaciofluvial deposits

Properties and qualities

Slope: 8 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability (nonirrigated): 6e
Ecological site: Savannah (PE 30-37) (R106XY025KS)

Typical profile

0 to 4 inches: Fine sandy loam
4 to 19 inches: Fine sandy loam
19 to 39 inches: Clay loam
39 to 47 inches: Clay loam
47 to 60 inches: Loam

Minor Components

Gymer

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (three-dimensional): Crest, side slope
Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Welda

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Ecological site: Savannah (PE 30-37) (R106XY025KS)

7423—Morrill clay loam, 3 to 7 percent slopes

Map Unit Setting

Elevation: 700 to 1,500 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Morrill and similar soils: 90 percent
Minor components: 10 percent

Description of Morrill

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy glaciofluvial deposits

Properties and qualities

Slope: 3 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.3 inches)

Interpretive groups

Land capability (nonirrigated): 3e
Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Typical profile

0 to 10 inches: Clay loam
10 to 16 inches: Clay loam
16 to 56 inches: Clay loam
56 to 66 inches: Clay loam

Minor Components

Oska

Percent of map unit: 5 percent
Landform: Hillslopes
Ecological site: Loamy Upland (Draft) (PE 35-42) (R112XY015KS)

Pawnee

Percent of map unit: 5 percent
Landform: Hillslopes
Ecological site: Clay Upland (PE 30-37) (R106XY007KS)

Aquolls

Percent of map unit:
Landform: Depressions, drainageways, hillslopes
Down-slope shape: Concave
Across-slope shape: Concave

7425—Morrill clay loam, 7 to 12 percent slopes

Map Unit Setting

Elevation: 700 to 2,000 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 175 to 215 days

Map Unit Composition

Morrill and similar soils: 85 percent
Minor components: 15 percent

Description of Morrill

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy glaciofluvial deposits

Properties and qualities

Slope: 7 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.3 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Typical profile

0 to 8 inches: Clay loam

8 to 13 inches: Clay loam

13 to 56 inches: Clay loam

56 to 66 inches: Clay loam

Minor Components

Martin

Percent of map unit: 5 percent

Landform: Hillslopes

Ecological site: Loamy Upland (Draft) (PE 35-42) (R112XY015KS)

Pawnee

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Ecological site: Clay Upland (PE 30-37) (R106XY007KS)

Thurman

Percent of map unit: 3 percent

Landform: Hillslopes

Landform position (three-dimensional): Side slope

Ecological site: Savannah (PE 30-37) (R106XY025KS)

Basehor

Percent of map unit: 2 percent

Landform: Hillslopes

Landform position (three-dimensional): Side slope

Ecological site: Shallow Savannah (PE 30-37) (R106XY031KS)

Aquolls

Percent of map unit:

Landform: Depressions, drainageways, hillslopes

Down-slope shape: Concave

Across-slope shape: Concave

7441—Morrill-gravelly loam, 4 to 20 percent slopes, stony

Map Unit Setting

Elevation: 800 to 2,000 feet

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Morrill, stony, and similar soils: 85 percent

Minor components: 15 percent

Description of Morrill, Stony

Setting

Landform: Hillslopes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy glaciofluvial deposits

Properties and qualities

Slope: 4 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.8 inches)

Interpretive groups

Land capability (nonirrigated): 6e
Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Typical profile

0 to 10 inches: Gravelly loam
10 to 15 inches: Gravelly clay loam
15 to 42 inches: Gravelly clay loam
42 to 60 inches: Gravelly sandy clay loam

Minor Components

Sogn

Percent of map unit: 10 percent
Landform: Hillslopes
Ecological site: Shallow Limy (PE 35-42) (R112XY028KS)

Pawnee

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest, side slope
Ecological site: Clay Upland (PE 30-37) (R106XY007KS)

Aquolls

Percent of map unit:
Landform: Depressions, drainageways, hillslopes
Down-slope shape: Concave
Across-slope shape: Concave

7502—Pawnee clay loam, 3 to 6 percent slopes

Map Unit Setting

Elevation: 700 to 1,600 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 52 to 59 degrees F

Custom Soil Resource Report

Frost-free period: 175 to 215 days

Map Unit Composition

Pawnee and similar soils: 85 percent

Minor components: 15 percent

Description of Pawnee

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Clayey drift

Properties and qualities

Slope: 3 to 7 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 12 to 17 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water capacity: Moderate (about 8.2 inches)

Interpretive groups

Land capability (nonirrigated): 3e

Ecological site: Clay Upland (PE 30-37) (R106XY007KS)

Typical profile

0 to 7 inches: Clay loam

7 to 12 inches: Clay loam

12 to 34 inches: Clay

34 to 54 inches: Clay loam

54 to 72 inches: Sandy clay loam

Minor Components

Oska

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder

Ecological site: Loamy Upland (Draft) (PE 35-42) (R112XY015KS)

Morrill

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Martin

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Custom Soil Resource Report

Landform position (three-dimensional): Side slope

Ecological site: Loamy Upland (Draft) (PE 35-42) (R112XY015KS)

Aquolls

Percent of map unit:

Landform: Depressions, drainageways

Down-slope shape: Concave

Across-slope shape: Concave

7649—Thurman complex, 4 to 10 percent slopes

Map Unit Setting

Elevation: 700 to 2,000 feet

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 52 to 59 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Thurman and similar soils: 35 percent

Minor components: 65 percent

Description of Thurman

Setting

Landform: Hillslopes

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Sandy eolian sands

Properties and qualities

Slope: 4 to 10 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.7 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Ecological site: Savannah (PE 30-37) (R106XY025KS)

Typical profile

0 to 13 inches: Loamy sand

13 to 22 inches: Loamy sand

22 to 60 inches: Fine sand

Minor Components

Unnamed, coarse-loamy

Percent of map unit: 30 percent

Landform: Hillslopes

Landform position (three-dimensional): Base slope

Down-slope shape: Convex

Custom Soil Resource Report

Across-slope shape: Convex

Ecological site: Savannah (PE 30-37) (R106XY025KS)

Unnamed, fine-loamy minor component

Percent of map unit: 25 percent

Landform: Hillslopes

Landform position (three-dimensional): Side slope

Ecological site: Savannah (PE 30-37) (R106XY025KS)

Morrill

Percent of map unit: 4 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Sharpsburg

Percent of map unit: 3 percent

Landform: Hillslopes

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Crest

Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

Gymer

Percent of map unit: 3 percent

Landform: Terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Ecological site: Loamy Upland (PE 30-37) (R106XY015KS)

9982—Fluvents, frequently flooded

Map Unit Setting

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Fluvents and similar soils: 100 percent

Description of Fluvents

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine-silty alluvium

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: About 33 to 38 inches

Frequency of flooding: Frequent

Frequency of ponding: None

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Available water capacity: Moderate (about 9.0 inches)

Interpretive groups

Land capability (nonirrigated): 6w

Typical profile

0 to 60 inches: Silty clay loam

Minor Components

Aquolls

Percent of map unit:

Landform: Depressions, drainageways

Down-slope shape: Concave

Across-slope shape: Concave

9983—Gravel pits and quarries

Map Unit Setting

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 41 to 64 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Pits, borrow: 100 percent

Description of Pits, Borrow

Setting

Landform position (two-dimensional): Summit, backslope, shoulder

Landform position (three-dimensional): Side slope, head slope

Down-slope shape: Convex

Across-slope shape: Convex

9999—Water

Map Unit Setting

Mean annual precipitation: 31 to 47 inches

Mean annual air temperature: 52 to 59 degrees F

Frost-free period: 175 to 215 days

Map Unit Composition

Water: 100 percent

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Nonirrigated Capability Class

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations that show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels-capability class, subclass, and unit. Only class and subclass are included in this data set.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

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Class 1 soils have few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.


305500	306000	306500	307000	307500	308000	308500	309000	309500	310000
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Legend—Nonirrigated Capability Class

MAP LEGEND










Area of Interest (AOI)

 Area of Interest (AOI)

Soils



 Soil Map Units

Soil Ratings



 Capability Class - I
 Capability Class - II
 Capability Class - III
 Capability Class - IV
 Capability Class - V
 Capability Class - VI
 Capability Class - VII
 Capability Class - VIII
 Not rated or not available

Political Features

Municipalities

 Cities
 Urban Areas



Water Features

 Oceans
 Streams and Canals

Transportation

 Rails

Roads

 Interstate Highways
 US Routes

 State Highways
 Local Roads
 Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 15N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Douglas County, Kansas
Survey Area Data: Version 5, Dec 21, 2007

Date(s) aerial images were photographed: 1991

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Nonirrigated Capability Class

Nonirrigated Capability Class— Summary by Map Unit — Douglas County, Kansas				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7035	Eudora-Bismarckgrove fine sandy loams, overwash, occasionally flooded	2	192.1	7.1%
7050	Kennebec silt loam, occasionally flooded	2	152.2	5.6%
7051	Kennebec silt loam, frequently flooded	5	2.7	0.1%
7089	Stonehouse-Eudora fine sandy loams, overwash, occasionally flooded	4	30.5	1.1%
7090	Wabash silty clay loam, occasionally flooded	3	29.7	1.1%
7106	Eudora-Bismarckgrove silt loams, rarely flooded	1	286.2	10.6%
7119	Eudora-Urban land complex, rarely flooded	2	144.2	5.3%
7123	Eudora silt loam, rarely flooded	1	177.8	6.6%
7127	Eudora-Kimo complex, overwash, rarely flooded	2	269.7	9.9%
7155	Kimo silty clay loam, rarely flooded	2	354.4	13.1%
7176	Rossville silt loam, very rarely flooded	1	566.6	20.9%
7213	Reading silt loam, moderately wet, very rarely flooded	2	271.9	10.0%
7282	Konawa fine sandy loam, 8 to 12 percent slopes	6	16.3	0.6%
7423	Morrill clay loam, 3 to 7 percent slopes	3	8.7	0.3%
7425	Morrill clay loam, 7 to 12 percent slopes	4	32.5	1.2%
7441	Morrill-gravelly loam, 4 to 20 percent slopes, stony	6	7.2	0.3%
7502	Pawnee clay loam, 3 to 6 percent slopes	3	12.7	0.5%
7649	Thurman complex, 4 to 10 percent slopes	4	0.5	0.0%
9982	Fluvents, frequently flooded	6	55.1	2.0%
9983	Gravel pits and quarries		38.4	1.4%

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Nonirrigated Capability Class— Summary by Map Unit — Douglas County, Kansas				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
9999	Water		62.0	2.3%
Totals for Area of Interest (AOI)			2,711.3	100.0%

Rating Options—Nonirrigated Capability Class

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Farmland Classification


Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

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Legend—Farmland Classification

MAP LEGEND









Area of Interest (AOI)








 Area of Interest (AOI)

Soils

 Soil Map Units



Soil Ratings

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season



-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Political Features







Municipalities

-  Cities
-  Urban Areas

Water Features

-  Oceans
-  Streams and Canals

Transportation

-  Rails
- Roads**
-  Interstate Highways
-  US Routes
-  State Highways
-  Local Roads
-  Other Roads

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Douglas County, Kansas
Survey Area Data: Version 5, Dec 21, 2007

Date(s) aerial images were photographed: 1991

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Farmland Classification

Farmland Classification— Summary by Map Unit — Douglas County, Kansas				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7035	Eudora-Bismarckgrove fine sandy loams, overwash, occasionally flooded	Not prime farmland	192.1	7.1%
7050	Kennebec silt loam, occasionally flooded	All areas are prime farmland	152.2	5.6%
7051	Kennebec silt loam, frequently flooded	Not prime farmland	2.7	0.1%
7089	Stonehouse-Eudora fine sandy loams, overwash, occasionally flooded	Not prime farmland	30.5	1.1%
7090	Wabash silty clay loam, occasionally flooded	Prime farmland if drained	29.7	1.1%
7106	Eudora-Bismarckgrove silt loams, rarely flooded	All areas are prime farmland	286.2	10.6%
7119	Eudora-Urban land complex, rarely flooded	Not prime farmland	144.2	5.3%
7123	Eudora silt loam, rarely flooded	All areas are prime farmland	177.8	6.6%
7127	Eudora-Kimo complex, overwash, rarely flooded	All areas are prime farmland	269.7	9.9%
7155	Kimo silty clay loam, rarely flooded	Not prime farmland	354.4	13.1%
7176	Rossville silt loam, very rarely flooded	All areas are prime farmland	566.6	20.9%
7213	Reading silt loam, moderately wet, very rarely flooded	All areas are prime farmland	271.9	10.0%
7282	Konawa fine sandy loam, 8 to 12 percent slopes	Not prime farmland	16.3	0.6%
7423	Morrill clay loam, 3 to 7 percent slopes	All areas are prime farmland	8.7	0.3%
7425	Morrill clay loam, 7 to 12 percent slopes	Farmland of statewide importance	32.5	1.2%
7441	Morrill-gravelly loam, 4 to 20 percent slopes, stony	Not prime farmland	7.2	0.3%
7502	Pawnee clay loam, 3 to 6 percent slopes	All areas are prime farmland	12.7	0.5%
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9982	Fluents, frequently flooded	Not prime farmland	55.1	2.0%
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Custom Soil Resource Report

Farmland Classification— Summary by Map Unit — Douglas County, Kansas				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
9999	Water	Not prime farmland	62.0	2.3%
Totals for Area of Interest (AOI)			2,711.3	100.0%

Rating Options—Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

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