



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Ingham County, Michigan

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January 24, 2017

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.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

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 Web Soil Survey, the site for official soil survey information.

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Contents

| | |
|---|----|
| Preface | 2 |
| Soil Map | 5 |
| Soil Map..... | 6 |
| Legend..... | 7 |
| Map Unit Legend..... | 8 |
| Map Unit Descriptions..... | 9 |
| Ingham County, Michigan..... | 11 |
| Ad—Adrian muck, 0 to 1 percent slopes..... | 11 |
| BsD—Boyer-Spinks loamy sands, 12 to 18 percent slopes..... | 12 |
| ByA—Brady sandy loam, 0 to 3 percent slopes..... | 14 |
| CaA—Capac loam, 0 to 4 percent slopes..... | 15 |
| Co—Colwood-Brookston loams..... | 17 |
| Gf—Gilford sandy loam, 0 to 2 percent slopes, gravelly subsoil..... | 19 |
| Ka—Keowns very fine sandy loam..... | 20 |
| KbA—Kibbie loam, 0 to 3 percent slopes..... | 22 |
| MaB—Marlette fine sandy loam, 2 to 6 percent slopes..... | 23 |
| MrA—Matherton sandy loam, 0 to 3 percent slopes..... | 24 |
| OsB—Oshtemo sandy loam, 0 to 6 percent slopes..... | 25 |
| OsC—Oshtemo sandy loam, 6 to 12 percent slopes..... | 27 |
| OtB—Oshtemo-Spinks loamy sands, 0 to 6 percent slopes..... | 29 |
| OwB—Owosso-Marlette sandy loams, 2 to 6 percent slopes..... | 31 |
| OwC—Owosso-Marlette sandy loams, 6 to 12 percent slopes..... | 33 |
| Pa—Palms muck..... | 35 |
| RdB—Riddles-Hillsdale sandy loams, 2 to 6 percent slopes..... | 36 |
| RdC—Riddles-Hillsdale sandy loams, 6 to 12 percent slopes..... | 38 |
| SpB—Spinks loamy sand, 0 to 6 percent slopes..... | 39 |
| SpC—Spinks loamy sand, 6 to 12 percent slopes..... | 41 |
| ThA—Thetford loamy sand, 0 to 3 percent slopes..... | 43 |

Soil Map

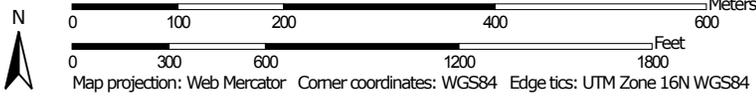
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:7,110 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  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

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Ingham County, Michigan
 Survey Area Data: Version 14, Sep 26, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 27, 2010—Jun 1, 2010

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

| Ingham County, Michigan (MI065) | | | |
|------------------------------------|---|--------------|----------------|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
| Ad | Adrian muck, 0 to 1 percent slopes | 5.4 | 3.4% |
| BsD | Boyer-Spinks loamy sands, 12 to 18 percent slopes | 5.6 | 3.5% |
| ByA | Brady sandy loam, 0 to 3 percent slopes | 11.7 | 7.3% |
| CaA | Capac loam, 0 to 4 percent slopes | 0.0 | 0.0% |
| Co | Colwood-Brookston loams | 2.0 | 1.3% |
| Gf | Gilford sandy loam, 0 to 2 percent slopes, gravelly subsoil | 18.2 | 11.4% |
| Ka | Keowns very fine sandy loam | 8.6 | 5.3% |
| KbA | Kibbie loam, 0 to 3 percent slopes | 1.1 | 0.7% |
| MaB | Marlette fine sandy loam, 2 to 6 percent slopes | 8.8 | 5.5% |
| MrA | Matherton sandy loam, 0 to 3 percent slopes | 5.5 | 3.4% |
| OsB | Oshtemo sandy loam, 0 to 6 percent slopes | 19.8 | 12.3% |
| OsC | Oshtemo sandy loam, 6 to 12 percent slopes | 2.5 | 1.6% |
| OtB | Oshtemo-Spinks loamy sands, 0 to 6 percent slopes | 12.2 | 7.6% |
| OwB | Owosso-Marlette sandy loams, 2 to 6 percent slopes | 11.1 | 6.9% |
| OwC | Owosso-Marlette sandy loams, 6 to 12 percent slopes | 4.4 | 2.7% |
| Pa | Palms muck | 5.3 | 3.3% |
| RdB | Riddles-Hillsdale sandy loams, 2 to 6 percent slopes | 5.8 | 3.6% |
| RdC | Riddles-Hillsdale sandy loams, 6 to 12 percent slopes | 3.2 | 2.0% |
| SpB | Spinks loamy sand, 0 to 6 percent slopes | 0.0 | 0.0% |
| SpC | Spinks loamy sand, 6 to 12 percent slopes | 26.5 | 16.5% |
| ThA | Thetford loamy sand, 0 to 3 percent slopes | 2.6 | 1.6% |
| Totals for Area of Interest | | 160.4 | 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

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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.

Ingham County, Michigan

Ad—Adrian muck, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2rfgz
Elevation: 630 to 1,110 feet
Mean annual precipitation: 31 to 41 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 125 to 205 days
Farmland classification: Farmland of local importance

Map Unit Composition

Adrian and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adrian

Setting

Landform: Depressions on moraines on outwash plains, depressions on outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, dip
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Herbaceous organic material over sandy glaciofluvial deposits

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 34 inches: muck
Cg - 34 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 0.4
Available water storage in profile: Very high (about 15.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Kingsville

Percent of map unit: 3 percent
Landform: Nearshore zones (relict), outwash plains
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Houghton

Percent of map unit: 2 percent
Landform: Depressions on moraines on outwash plains, depressions on outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

Edwards

Percent of map unit: 2 percent
Landform: Depressions on outwash plains, depressions on moraines on outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, dip
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: Yes

Gilford

Percent of map unit: 1 percent
Landform: Lakebeds (relict) on moraines, lakebeds (relict) on glacial drainage channels, lakebeds (relict) on outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tal
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

BSD—Boyer-Spinks loamy sands, 12 to 18 percent slopes

Map Unit Setting

National map unit symbol: 6896
Elevation: 600 to 1,200 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Boyer and similar soils: 40 percent

Spinks and similar soils: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boyer

Setting

Landform: Outwash plains, moraines, eskers

Landform position (two-dimensional): Backslope

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

Down-slope shape: Concave

Across-slope shape: Convex

Parent material: Sandy and/or loamy over sandy and gravelly outwash

Typical profile

Ap - 0 to 5 inches: loamy sand

E - 5 to 11 inches: sandy loam

Bt - 11 to 23 inches: sandy loam

2C - 23 to 60 inches: gravelly sand

Properties and qualities

Slope: 12 to 18 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Low

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: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 25 percent

Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Hydric soil rating: No

Description of Spinks

Setting

Landform: Till plains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Concave

Across-slope shape: Convex

Parent material: Sandy outwash

Typical profile

A - 0 to 5 inches: loamy sand

E - 5 to 22 inches: loamy sand

E and Bt - 22 to 60 inches: sand

Properties and qualities

Slope: 12 to 18 percent

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Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
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: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

ByA—Brady sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 6898
Elevation: 360 to 1,200 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Brady and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brady

Setting

Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy and/or sandy outwash

Typical profile

Ap - 0 to 9 inches: sandy loam
Bt1 - 9 to 36 inches: sandy loam
2Bt2 - 36 to 49 inches: loamy sand
2C - 49 to 68 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very low

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

Depth to water table: About 12 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 25 percent

Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Gilford

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Oshtemo

Percent of map unit: 5 percent

Hydric soil rating: No

CaA—Capac loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2w63q

Elevation: 630 to 990 feet

Mean annual precipitation: 30 to 41 inches

Mean annual air temperature: 43 to 52 degrees F

Frost-free period: 140 to 200 days

Farmland classification: Prime farmland if drained

Map Unit Composition

Capac and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Capac

Setting

Landform: Till plains, moraines

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy till

Custom Soil Resource Report

Typical profile

Ap - 0 to 9 inches: loam
B/E - 9 to 16 inches: clay loam
Bt - 16 to 31 inches: clay loam
C - 31 to 80 inches: loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Nonsaline (0.1 to 0.4 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Parkhill, non dense till subsoil

Percent of map unit: 4 percent
Landform: Moraines, till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear
Hydric soil rating: Yes

Selfridge

Percent of map unit: 3 percent
Landform: Moraines, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Marlette

Percent of map unit: 2 percent
Landform: Till plains, moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope, head slope, nose slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Filer

Percent of map unit: 1 percent
Landform: Moraines, till plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, head slope, nose slope, interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Co—Colwood-Brookston loams

Map Unit Setting

National map unit symbol: 689d
Elevation: 500 to 1,500 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Colwood and similar soils: 44 percent
Brookston and similar soils: 36 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colwood

Setting

Landform: Lake plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified sandy and/or silty and/or loamy glaciolacustrine deposits

Typical profile

Ap - 0 to 10 inches: loam
Bg - 10 to 26 inches: silty clay loam
Cg - 26 to 60 inches: stratified fine sand to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None

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Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 20 percent
Available water storage in profile: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Brookston

Setting

Landform: Till plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

Ap - 0 to 13 inches: loam
Btg - 13 to 42 inches: clay loam
C - 42 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 35 percent
Available water storage in profile: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Kibbie

Percent of map unit: 5 percent
Hydric soil rating: No

Aubbeenaubbee

Percent of map unit: 5 percent
Hydric soil rating: No

Capac

Percent of map unit: 5 percent
Hydric soil rating: No

Gf—Gilford sandy loam, 0 to 2 percent slopes, gravelly subsoil

Map Unit Setting

National map unit symbol: 2w5lx
Elevation: 660 to 990 feet
Mean annual precipitation: 30 to 41 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 140 to 200 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Gilford, gravelly subsoil, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilford, Gravelly Subsoil

Setting

Landform: Glacial drainage channels, glacial drainage channels
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy drift over sandy and gravelly outwash

Typical profile

Ap - 0 to 11 inches: sandy loam
Bg - 11 to 30 inches: sandy loam
BCg - 30 to 35 inches: loamy sand
Cg - 35 to 80 inches: gravelly sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 26 percent
Salinity, maximum in profile: Nonsaline (0.0 to 0.3 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w

Custom Soil Resource Report

Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Brady

Percent of map unit: 5 percent
Landform: Glacial drainage channels, glacial drainage channels
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sebewa

Percent of map unit: 5 percent
Landform: Glacial drainage channels, glacial drainage channels
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Adrian

Percent of map unit: 3 percent
Landform: Depressions on glacial drainage channels, depressions on glacial drainage channels
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

Granby

Percent of map unit: 2 percent
Landform: Glacial drainage channels, glacial drainage channels
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: Yes

Ka—Keowns very fine sandy loam

Map Unit Setting

National map unit symbol: 689m
Elevation: 250 to 1,500 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days

Custom Soil Resource Report

Farmland classification: Prime farmland if drained

Map Unit Composition

Keowns and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Keowns

Setting

Landform: Lake plains, depressions

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy over stratified sandy and/or loamy lacustrine deposits

Typical profile

Ap - 0 to 10 inches: very fine sandy loam

Bg - 10 to 29 inches: fine sandy loam

Cg - 29 to 60 inches: stratified very fine sand to silt

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Minor Components

Brady

Percent of map unit: 8 percent

Hydric soil rating: No

Kibbie

Percent of map unit: 7 percent

Hydric soil rating: No

Palms

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

KbA—Kibbie loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 689n
Elevation: 600 to 1,500 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Kibbie and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kibbie

Setting

Landform: Lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy glaciofluvial deposits; loamy glaciofluvial deposits and/or silty glaciolacustrine deposits

Typical profile

Ap - 0 to 11 inches: loam
Bt - 11 to 28 inches: sandy clay loam
Cg - 28 to 60 inches: stratified fine sand to silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Available water storage in profile: High (about 11.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Hydric soil rating: No

Minor Components

Colwood

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Sisson

Percent of map unit: 5 percent
Hydric soil rating: No

Keowns

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

MaB—Marlette fine sandy loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2w5mj
Elevation: 800 to 1,000 feet
Mean annual precipitation: 30 to 41 inches
Mean annual air temperature: 41 to 52 degrees F
Frost-free period: 110 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Marlette and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marlette

Setting

Landform: Moraines, till plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope, head slope
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Loamy till

Typical profile

Ap - 0 to 9 inches: fine sandy loam
B/E - 9 to 16 inches: clay loam
Bt - 16 to 36 inches: clay loam
C - 36 to 80 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained

Custom Soil Resource Report

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)

Depth to water table: About 18 to 24 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Salinity, maximum in profile: Nonsaline (0.1 to 0.4 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D

Hydric soil rating: No

Minor Components

Capac

Percent of map unit: 8 percent

Landform: Moraines, till plains

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Parkhill, non dense till subsoil

Percent of map unit: 2 percent

Landform: Moraines, till plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear, concave

Across-slope shape: Linear

Hydric soil rating: Yes

MrA—Matherton sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 689v

Elevation: 600 to 1,200 feet

Mean annual precipitation: 30 to 36 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 140 to 150 days

Farmland classification: Prime farmland if drained

Map Unit Composition

Matherton and similar soils: 85 percent

Minor components: 15 percent

Custom Soil Resource Report

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matherton

Setting

Landform: Outwash plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy over sandy and gravelly glaciofluvial deposits; loamy over loamy and/or sandy outwash

Typical profile

Ap - 0 to 11 inches: sandy loam

Bt - 11 to 38 inches: gravelly sandy clay loam

2C - 38 to 60 inches: gravelly sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: About 12 to 24 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 25 percent

Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B/D

Hydric soil rating: No

Minor Components

Sebewa

Percent of map unit: 10 percent

Landform: Depressions

Hydric soil rating: Yes

Boyer

Percent of map unit: 5 percent

Hydric soil rating: No

OsB—Oshtemo sandy loam, 0 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2v2cd

Elevation: 710 to 1,010 feet

Custom Soil Resource Report

Mean annual precipitation: 30 to 41 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 140 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Oshtemo and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oshtemo

Setting

Landform: Moraines, outwash plains, outwash terraces
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Interfluve, side slope, head slope, nose slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy drift over calcareous sandy and gravelly drift

Typical profile

Ap - 0 to 8 inches: sandy loam
E - 8 to 13 inches: sandy loam
Bt - 13 to 36 inches: sandy loam
E and Bt - 36 to 55 inches: loamy sand
2C - 55 to 80 inches: gravelly sand

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 34 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Brady

Percent of map unit: 3 percent
Landform: Moraines, outwash plains, outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear

Custom Soil Resource Report

Across-slope shape: Linear
Hydric soil rating: No

Bronson

Percent of map unit: 3 percent
Landform: Outwash plains, outwash terraces, moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, head slope, nose slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Spinks

Percent of map unit: 3 percent
Landform: Moraines, outwash plains, outwash terraces
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Interfluve, side slope, head slope, nose slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Gilford

Percent of map unit: 1 percent
Landform: Outwash plains, outwash terraces, moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

OsC—Oshtemo sandy loam, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2v2cf
Elevation: 740 to 1,030 feet
Mean annual precipitation: 30 to 41 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 140 to 200 days
Farmland classification: Farmland of local importance

Map Unit Composition

Oshtemo and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oshtemo

Setting

Landform: Moraines, outwash plains, outwash terraces
Landform position (two-dimensional): Backslope

Custom Soil Resource Report

Landform position (three-dimensional): Side slope, head slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Loamy drift over calcareous sandy and gravelly drift

Typical profile

Ap - 0 to 8 inches: sandy loam
E - 8 to 13 inches: sandy loam
Bt - 13 to 36 inches: sandy loam
E and Bt - 36 to 55 inches: loamy sand
2C - 55 to 80 inches: gravelly sand

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 34 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Brady

Percent of map unit: 3 percent
Landform: Moraines, outwash plains, outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Spinks

Percent of map unit: 3 percent
Landform: Outwash plains, outwash terraces, moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear
Hydric soil rating: No

Bronson

Percent of map unit: 3 percent
Landform: Outwash plains, outwash terraces, moraines
Landform position (two-dimensional): Backslope

Custom Soil Resource Report

Landform position (three-dimensional): Side slope, head slope, nose slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Gilford

Percent of map unit: 1 percent
Landform: Outwash plains, outwash terraces, moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

OtB—Oshtemo-Spinks loamy sands, 0 to 6 percent slopes

Map Unit Setting

National map unit symbol: 68b1
Elevation: 600 to 1,200 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Farmland of local importance

Map Unit Composition

Oshtemo and similar soils: 45 percent
Spinks and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oshtemo

Setting

Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy over sandy outwash

Typical profile

Ap - 0 to 20 inches: loamy sand
Bt - 20 to 36 inches: sandy loam
BC - 36 to 51 inches: sand
2C - 51 to 60 inches: gravelly sand

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Negligible

Custom Soil Resource Report

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: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 25 percent

Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A

Hydric soil rating: No

Description of Spinks

Setting

Landform: Beach ridges

Landform position (three-dimensional): Riser

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy outwash

Typical profile

A - 0 to 8 inches: loamy sand

E - 8 to 20 inches: loamy sand

E and Bt - 20 to 60 inches: sand

Properties and qualities

Slope: 0 to 4 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Negligible

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: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Metea

Percent of map unit: 5 percent

Landform: Ridges

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Brady

Percent of map unit: 5 percent

Landform: Depressions

Custom Soil Resource Report

Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

OwB—Owosso-Marlette sandy loams, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 68b3
Elevation: 600 to 1,200 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Owosso and similar soils: 45 percent
Marlette and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Owosso

Setting

Landform: Till plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy glaciofluvial deposits over loamy till

Typical profile

Ap - 0 to 9 inches: sandy loam
B - 9 to 32 inches: sandy loam
2C - 32 to 60 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Custom Soil Resource Report

Hydrologic Soil Group: C
Hydric soil rating: No

Description of Marlette

Setting

Landform: End moraines
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

Ap - 0 to 9 inches: sandy loam
B/E - 9 to 15 inches: loam
Bt - 15 to 31 inches: clay loam
C - 31 to 60 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 30 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Boyer

Percent of map unit: 10 percent
Hydric soil rating: No

Oshtemo

Percent of map unit: 10 percent
Hydric soil rating: No

Capac

Percent of map unit: 5 percent
Hydric soil rating: No

OwC—Owosso-Marlette sandy loams, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 68b4
Elevation: 600 to 1,200 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Farmland of local importance

Map Unit Composition

Owosso and similar soils: 55 percent
Marlette and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Owosso

Setting

Landform: Till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits over loamy till

Typical profile

Ap - 0 to 9 inches: sandy loam
B - 9 to 32 inches: sandy loam
2C - 32 to 60 inches: clay loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Marlette

Setting

Landform: End moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy till

Typical profile

Ap - 0 to 9 inches: sandy loam
B/E - 9 to 15 inches: loam
Bt - 15 to 29 inches: clay loam
C - 29 to 60 inches: loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Boyer

Percent of map unit: 5 percent
Landform: End moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Oshtemo

Percent of map unit: 5 percent
Landform: End moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Pa—Palms muck

Map Unit Setting

National map unit symbol: 68b5
Elevation: 250 to 1,500 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Farmland of local importance

Map Unit Composition

Palms and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Palms

Setting

Landform: Lake plains
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Herbaceous organic material over loamy lacustrine deposits

Typical profile

Oap - 0 to 9 inches: muck
Oa - 9 to 36 inches: muck
2Cg - 36 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 20 percent
Available water storage in profile: Very high (about 18.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Aurelius

Percent of map unit: 10 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

Sebewa

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Colwood

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Gilford

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

RdB—Riddles-Hillsdale sandy loams, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 68b7
Elevation: 580 to 1,200 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Riddles and similar soils: 55 percent
Hillsdale and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riddles

Setting

Landform: Till plains, till plains

Custom Soil Resource Report

Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

E - 0 to 22 inches: sandy loam
Bt - 22 to 60 inches: sandy loam
C - 60 to 66 inches: sandy loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Hillsdale

Setting

Landform: Moraines, till plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

Ap - 0 to 8 inches: sandy loam
Bt - 8 to 44 inches: sandy loam
BC - 44 to 66 inches: sandy loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Spinks

Percent of map unit: 10 percent

Hydric soil rating: No

RdC—Riddles-Hillsdale sandy loams, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 68b8

Elevation: 580 to 1,200 feet

Mean annual precipitation: 30 to 36 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 140 to 150 days

Farmland classification: Farmland of local importance

Map Unit Composition

Riddles and similar soils: 55 percent

Hillsdale and similar soils: 35 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riddles

Setting

Landform: Till plains

Landform position (three-dimensional): Side slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Loamy till

Typical profile

E - 0 to 18 inches: sandy loam

Bt - 18 to 47 inches: sandy loam

C - 47 to 60 inches: sandy loam

Properties and qualities

Slope: 6 to 12 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Available water storage in profile: Moderate (about 8.6 inches)

Custom Soil Resource Report

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: A

Hydric soil rating: No

Description of Hillsdale

Setting

Landform: Moraines, till plains

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Loamy till

Typical profile

Ap - 0 to 8 inches: sandy loam

Bt - 8 to 44 inches: sandy loam

BC - 44 to 66 inches: sandy loam

Properties and qualities

Slope: 6 to 12 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Spinks

Percent of map unit: 10 percent

Hydric soil rating: No

SpB—Spinks loamy sand, 0 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2tpkp

Elevation: 670 to 1,050 feet

Mean annual precipitation: 30 to 41 inches

Mean annual air temperature: 43 to 52 degrees F

Custom Soil Resource Report

Frost-free period: 140 to 200 days

Farmland classification: Farmland of local importance

Map Unit Composition

Spinks and similar soils: 92 percent

Minor components: 8 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Spinks

Setting

Landform: Glacial drainage channels, moraines, outwash plains

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

Landform position (three-dimensional): Interfluvium, head slope, nose slope, side slope, tread

Down-slope shape: Linear, convex

Across-slope shape: Linear

Parent material: Sandy drift

Typical profile

Ap - 0 to 9 inches: loamy sand

Bw - 9 to 28 inches: sand

E and Bt - 28 to 69 inches: loamy sand

C - 69 to 80 inches: sand

Properties and qualities

Slope: 0 to 6 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 20 percent

Salinity, maximum in profile: Nonsaline (0.0 to 0.4 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Thetford

Percent of map unit: 3 percent

Landform: Outwash plains, moraines

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear, concave

Across-slope shape: Linear

Hydric soil rating: No

Custom Soil Resource Report

Tekenink

Percent of map unit: 2 percent
Landform: Moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Oshtemo

Percent of map unit: 2 percent
Landform: Outwash plains, glacial drainage channels, moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, head slope, nose slope, side slope, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear
Hydric soil rating: No

Metea

Percent of map unit: 1 percent
Landform: Moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

SpC—Spinks loamy sand, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2tpkq
Elevation: 700 to 1,070 feet
Mean annual precipitation: 30 to 41 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 140 to 200 days
Farmland classification: Farmland of local importance

Map Unit Composition

Spinks and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Spinks

Setting

Landform: Outwash plains, glacial drainage channels, moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope

Custom Soil Resource Report

Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Sandy drift

Typical profile

Ap - 0 to 9 inches: loamy sand
Bw - 9 to 28 inches: sand
E and Bt - 28 to 69 inches: loamy sand
C - 69 to 80 inches: sand

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Salinity, maximum in profile: Nonsaline (0.0 to 0.4 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Oshtemo

Percent of map unit: 4 percent
Landform: Outwash plains, glacial drainage channels, moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear
Hydric soil rating: No

Thetford

Percent of map unit: 3 percent
Landform: Outwash plains, glacial drainage channels, moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear
Hydric soil rating: No

Metea

Percent of map unit: 2 percent
Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope
Down-slope shape: Linear, convex

Custom Soil Resource Report

Across-slope shape: Linear
Hydric soil rating: No

Filer

Percent of map unit: 1 percent
Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, head slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Linear
Hydric soil rating: No

ThA—Thetford loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 68bh
Elevation: 360 to 1,200 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Farmland of local importance

Map Unit Composition

Thetford and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Thetford

Setting

Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy outwash

Typical profile

Ap - 0 to 10 inches: loamy sand
E - 10 to 15 inches: sand
E and Bt - 15 to 58 inches: sand
C - 58 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: None

Available water storage in profile: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D

Hydric soil rating: No

Minor Components

Granby

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Kibbie

Percent of map unit: 5 percent

Hydric soil rating: No

Gilford

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Spinks

Percent of map unit: 5 percent

Hydric soil rating: No