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 Hamlin County, South Dakota

August 14, 2025

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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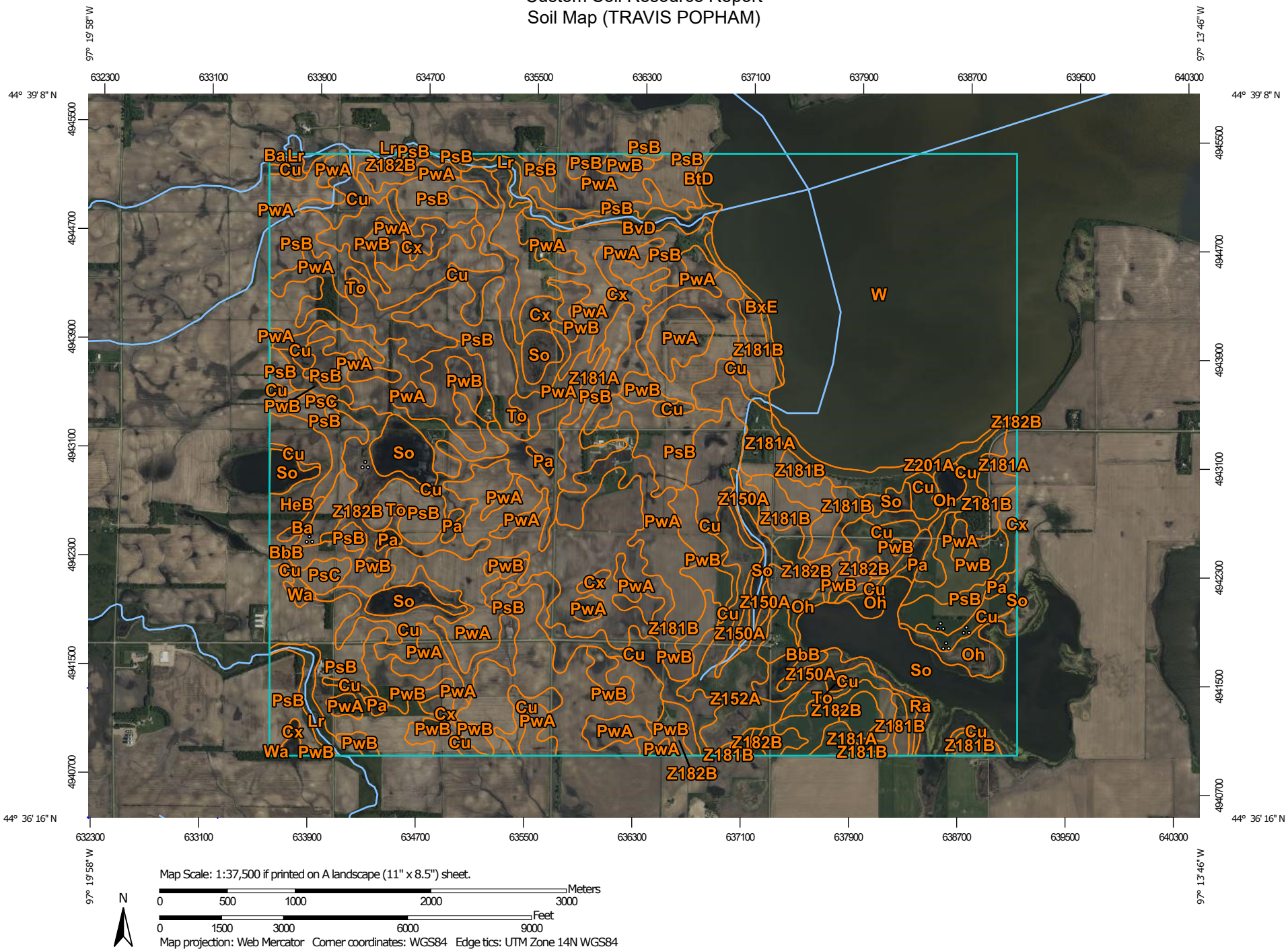
Contents

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 (TRAVIS POPHAM)



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
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- Miscellaneous Water
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- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Hamlin County, South Dakota
Survey Area Data: Version 26, Aug 30, 2024

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

Date(s) aerial images were photographed: Jun 1, 2022—Jun 12, 2022

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 (TRAVIS POPHAM)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ba	Badger silty clay loam, 0 to 1 percent slopes	7.3	0.1%
BbB	Barnes-Buse loams, coteau, 2 to 6 percent slopes	10.9	0.2%
BtD	Buse-Barnes loams, 9 to 20 percent slopes	4.5	0.1%
BvD	Buse-Lamoure, channeled, complex, 0 to 40 percent slopes	27.5	0.5%
BxE	Buse-Langhei complex, 15 to 40 percent slopes	13.4	0.2%
Cu	Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes	834.0	13.7%
Cx	Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes	101.1	1.7%
HeB	Hetland silty clay loam, 2 to 6 percent slopes	56.8	0.9%
Lr	Lamoure-Rauville silty clay loams, channeled	62.4	1.0%
Oh	Oldham silty clay loam	82.9	1.4%
Pa	Parnell silty clay loam	30.9	0.5%
PsB	Poinsett-Buse-Waubay complex, 1 to 6 percent slopes	1,633.3	26.9%
PsC	Poinsett-Buse-Waubay complex, 2 to 9 percent slopes	25.9	0.4%
PwA	Poinsett-Waubay silty clay loams, 0 to 2 percent slopes	693.8	11.4%
PwB	Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	372.6	6.1%
Ra	Rauville silty clay loam	6.4	0.1%
So	Southam silty clay loam, 0 to 1 percent slopes	351.8	5.8%
To	Tonka silty clay loam, 0 to 1 percent slopes	8.9	0.1%
W	Water	1,085.5	17.9%
Wa	Waubay silty clay loam, 0 to 2 percent slopes	7.0	0.1%
Z150A	Rauville silty clay loam, coteau, 0 to 1 percent slopes, frequently flooded	61.3	1.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Z152A	Lamoure silty clay loam, coteau, 0 to 1 percent slopes, occasionally flooded	117.0	1.9%
Z159A	Divide loam, 0 to 2 percent slopes, occasionally flooded	5.8	0.1%
Z181A	Brandt silty clay loam, 0 to 2 percent slopes	142.6	2.4%
Z181B	Brandt silty clay loam, 2 to 6 percent slopes	174.1	2.9%
Z182B	Estelline silt loam, coteau, 2 to 6 percent slopes	97.6	1.6%
Z201A	Minnewaukan loamy sand, occasionally ponded, 0 to 3 percent slopes	50.0	0.8%
Totals for Area of Interest		**6,065.9**	**100.0%**

Map Unit Descriptions (TRAVIS POPHAM)

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.

Hamlin County, South Dakota

Ba—Badger silty clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2wkr7
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Badger

Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Local alluvium over fine-loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bt - 8 to 28 inches: silty clay
BC - 28 to 37 inches: silty clay loam
Cg1 - 37 to 70 inches: silty clay loam
2Cg2 - 70 to 79 inches: clay loam

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 0.60 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R102DY003SD - Subirrigated
Forage suitability group: Subirrigated (G102AY700SD)
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Minor Components

Cubden

Percent of map unit: 3 percent
Landform: Rims on drainageways
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Waubay

Percent of map unit: 3 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 2 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Parnell

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY001SD - Shallow Marsh
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Badger, poorly drained

Percent of map unit: 1 percent
Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

BbB—Barnes-Buse loams, coteau, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2wkqr
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Barnes and similar soils: 60 percent
Buse and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Barnes

Setting

Landform: Ground moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy till

Typical profile

Ap - 0 to 8 inches: loam
Bw - 8 to 18 inches: loam
Bk - 18 to 38 inches: clay loam
C - 38 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 49 to 61 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C

Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Description of Buse

Setting

Landform: Ground moraines
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy till

Typical profile

Ap - 0 to 8 inches: loam
Bk - 8 to 32 inches: clay loam
C - 32 to 79 inches: clay loam

Properties and qualities

Slope: 3 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R102DY012SD - Thin Upland
Forage suitability group: Limy Upland (G102AY400SD)
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Minor Components

Svea

Percent of map unit: 6 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Renshaw

Percent of map unit: 2 percent
Landform: Outwash plains

Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY014SD - Shallow Gravel
Other vegetative classification: Very Droughty Loam (G102AY130SD)
Hydric soil rating: No

Badger

Percent of map unit: 1 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

BtD—Buse-Barnes loams, 9 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2yyj3
Elevation: 1,150 to 2,130 feet
Mean annual precipitation: 22 to 29 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 140 to 175 days
Farmland classification: Not prime farmland

Map Unit Composition

Buse and similar soils: 50 percent
Barnes and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buse

Setting

Landform: Ground moraines
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex

Across-slope shape: Convex
Parent material: Fine-loamy till

Typical profile

A - 0 to 8 inches: loam
Bk - 8 to 32 inches: clay loam
C - 32 to 79 inches: clay loam

Properties and qualities

Slope: 9 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R102DY012SD - Thin Upland
Forage suitability group: Limy Upland (G102AY400SD)
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Description of Barnes

Setting

Landform: Ground moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy till

Typical profile

A - 0 to 8 inches: loam
Bw - 8 to 18 inches: loam
Bk - 18 to 38 inches: clay loam
C - 38 to 79 inches: clay loam

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 49 to 61 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Minor Components

Svea

Percent of map unit: 4 percent
Landform: Swales
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102DY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Sioux

Percent of map unit: 2 percent
Landform: Outwash plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102DY016SD - Very Shallow
Other vegetative classification: Shallow (G102AY003SD)
Hydric soil rating: No

Holmquist

Percent of map unit: 1 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102DY007SD - Saline Lowland
Other vegetative classification: Saline (G102AY895SD)
Hydric soil rating: Yes

Parnell, undrained

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102DY001SD - Shallow Marsh
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Tonka, undrained

Percent of map unit: 1 percent
Landform: Depressions

Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102DY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Buse, very stony

Percent of map unit: 1 percent
Landform: Ground moraines
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102DY012SD - Thin Upland
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

BvD—Buse-Lamoure, channeled, complex, 0 to 40 percent slopes

Map Unit Setting

National map unit symbol: g060
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Buse and similar soils: 50 percent
Lamoure, channeled, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buse

Setting

Landform: Moraines
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 24 inches: loam
H3 - 24 to 60 inches: loam

Properties and qualities

Slope: 9 to 40 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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R102DY012SD - Thin Upland
Forage suitability group: Not suited (G102AY000SD)
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: No

Description of Lamoure, Channeled

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

H1 - 0 to 35 inches: silty clay loam
H2 - 35 to 60 inches: silty clay loam

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): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: Very high (about 12.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: R102DY002SD - Linear Meadow
Forage suitability group: Wet (G102AY900SD)
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Minor Components

Rauville

Percent of map unit: 7 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Barnes

Percent of map unit: 5 percent
Landform: Moraines
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

La prairie

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY040SD - Loamy Floodplain
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Sioux

Percent of map unit: 3 percent
Landform: Outwash terraces on moraines
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102AY016SD - Very Shallow
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: No

BxE—Buse-Langhei complex, 15 to 40 percent slopes

Map Unit Setting

National map unit symbol: g063
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Buse and similar soils: 50 percent
Langhei and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buse

Setting

Landform: Moraines
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 24 inches: loam
H3 - 24 to 60 inches: loam

Properties and qualities

Slope: 15 to 40 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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R102DY012SD - Thin Upland
Forage suitability group: Not suited (G102AY000SD)
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: No

Description of Langhei

Setting

Landform: Moraines
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till

Typical profile

H1 - 0 to 4 inches: clay loam
H2 - 4 to 15 inches: clay loam
H3 - 15 to 60 inches: clay loam

Properties and qualities

Slope: 25 to 40 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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R102DY012SD - Thin Upland
Forage suitability group: Not suited (G102AY000SD)
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: No

Minor Components

Barnes

Percent of map unit: 3 percent
Landform: Moraines
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Steep Loam (G102AY109SD)
Hydric soil rating: No

Kranzburg

Percent of map unit: 3 percent
Landform: Plains
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Svea

Percent of map unit: 3 percent
Landform: Swales
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Vienna

Percent of map unit: 3 percent
Landform: Moraines

Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Sioux

Percent of map unit: 2 percent
Landform: Outwash terraces on moraines
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102AY016SD - Very Shallow
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: No

Lamoure

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: Yes

Cu—Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2wkr9
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Cubden and similar soils: 50 percent
Badger and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cubden

Setting

Landform: Rims on drainageways
Down-slope shape: Linear
Across-slope shape: Convex

Parent material: Periglacial loess over loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
ABk - 8 to 11 inches: silty clay loam
Bk - 11 to 28 inches: silty clay loam
C1 - 28 to 57 inches: silt loam
2C2 - 57 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 2 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 high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 3 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 8.0
Available water supply, 0 to 60 inches: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C/D
Ecological site: R102DY006SD - Limy Subirrigated
Forage suitability group: Subirrigated (G102AY700SD)
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Description of Badger

Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Local alluvium over fine-loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bt - 8 to 28 inches: silty clay
BC - 28 to 37 inches: silty clay loam
Cg1 - 37 to 70 inches: silty clay loam
2Cg2 - 70 to 79 inches: clay loam

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 0.60 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: Frequent
Frequency of ponding: None

Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R102DY003SD - Subirrigated
Forage suitability group: Subirrigated (G102AY700SD)
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Minor Components

Waubay

Percent of map unit: 4 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Badger, poorly drained

Percent of map unit: 2 percent
Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Cubden, moderately saline

Percent of map unit: 2 percent
Landform: Rims on drainageways
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY036SD - Saline Subirrigated
Other vegetative classification: Saline (G102AY895SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Poinsett

Percent of map unit: 1 percent
Landform: Ground moraines
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear

Ecological site: R102AY010SD - Loamy
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Cx—Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tlc5
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Cubden

Setting

Landform: Rims on closed depressions
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Periglacial loess over loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
ABk - 8 to 11 inches: silty clay loam
Bk - 11 to 28 inches: silty clay loam
C1 - 28 to 57 inches: silt loam
2C2 - 57 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 2 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 high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 3 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 8.0
Available water supply, 0 to 60 inches: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C/D
Ecological site: R102DY006SD - Limy Subirrigated
Forage suitability group: Subirrigated (G102AY700SD)
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Description of Tonka, Undrained

Setting

Landform: Closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey alluvium over loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 14 inches: silty clay loam
E - 14 to 24 inches: silt loam
Bt - 24 to 40 inches: silty clay
Cg1 - 40 to 54 inches: silty clay loam
2Cg2 - 54 to 79 inches: clay loam

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): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: R102DY004SD - Wet Meadow
Forage suitability group: Wet (G102AY900SD)
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Minor Components

Badger

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated

Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Cubden, moderately saline

Percent of map unit: 2 percent
Landform: Rims on closed depressions
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY036SD - Saline Subirrigated
Other vegetative classification: Saline (G102AY895SD)
Hydric soil rating: No

Parnell

Percent of map unit: 2 percent
Landform: Closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY001SD - Shallow Marsh
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Waubay

Percent of map unit: 2 percent
Landform: Swales
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Badger, poorly drained

Percent of map unit: 1 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

HeB—Hetland silty clay loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2t5qx
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Hetland

Setting

Landform: Collapsed ice-walled lakebeds
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey glaciolacustrine deposits

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bt - 8 to 23 inches: silty clay
Bk - 23 to 41 inches: silty clay loam
C - 41 to 79 inches: silty clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 49 to 61 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Clayey Subsoil (G102AY210SD)
Other vegetative classification: Clayey Subsoil (G102AY210SD)
Hydric soil rating: No

Minor Components

Poinsett

Percent of map unit: 7 percent
Landform: Plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Buse

Percent of map unit: 3 percent
Landform: Plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102AY012SD - Thin Upland
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Waubay

Percent of map unit: 2 percent
Landform: Swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Cubden

Percent of map unit: 2 percent
Landform: Rims on swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 1 percent
Landform: Potholes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Lr—Lamoure-Rauville silty clay loams, channeled

Map Unit Setting

National map unit symbol: g06y
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches

Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lamoure, channeled, and similar soils: 60 percent
Rauville and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lamoure, Channeled

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

H1 - 0 to 35 inches: silty clay loam
H2 - 35 to 60 inches: silty clay loam

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): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: Very high (about 12.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: R102DY002SD - Linear Meadow
Forage suitability group: Wet (G102AY900SD)
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Description of Rauville

Setting

Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium over outwash

Typical profile

H1 - 0 to 9 inches: silty clay loam

H2 - 9 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
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 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: R102DY002SD - Linear Meadow
Forage suitability group: Not suited (G102AY000SD)
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Minor Components

Buse

Percent of map unit: 5 percent
Landform: Plains
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102AY012SD - Thin Upland
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Divide

Percent of map unit: 5 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Marysland, undrained

Percent of map unit: 5 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Oh—Oldham silty clay loam

Map Unit Setting

National map unit symbol: g075
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Oldham

Setting

Landform: Potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey alluvium

Typical profile

H1 - 0 to 9 inches: silty clay loam
H2 - 9 to 44 inches: clay loam
H3 - 44 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 3 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: R102DY001SD - Shallow Marsh

Forage suitability group: Not suited (G102AY000SD)
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Minor Components

Colvin

Percent of map unit: 4 percent
Landform: Rims on potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Southam

Percent of map unit: 4 percent
Landform: Potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY037SD - Deep Marsh
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Vallers

Percent of map unit: 3 percent
Landform: Rims on potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Mauvais

Percent of map unit: 2 percent
Landform: Wave-cut platforms
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: Yes

Playmoor

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY007SD - Saline Lowland
Other vegetative classification: Saline (G102AY895SD)
Hydric soil rating: Yes

Pa—Parnell silty clay loam

Map Unit Setting

National map unit symbol: g077
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Parnell, Undrained

Setting

Landform: Potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey alluvium

Typical profile

H1 - 0 to 18 inches: silty clay loam
H2 - 18 to 38 inches: silty clay
H3 - 38 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very 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 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: R102DY001SD - Shallow Marsh
Forage suitability group: Not suited (G102AY000SD)

Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Minor Components

Colvin
Percent of map unit: 4 percent
Landform: Rims on potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Cubden
Percent of map unit: 4 percent
Landform: Rims on potholes
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Vallers
Percent of map unit: 4 percent
Landform: Rims on potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Tonka, undrained
Percent of map unit: 3 percent
Landform: Potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

PsB—Poinsett-Buse-Waubay complex, 1 to 6 percent slopes

Map Unit Setting
National map unit symbol: 2tlc8
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches

Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Poinsett and similar soils: 40 percent
Buse and similar soils: 30 percent
Waubay and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Poinsett

Setting

Landform: Plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Periglacial loess over loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bw - 8 to 24 inches: silty clay loam
Bk - 24 to 62 inches: silty clay loam
2C - 62 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 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: About 49 to 61 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Description of Buse

Setting

Landform: Plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Loamy till

Typical profile

Ap - 0 to 8 inches: loam
Bk - 8 to 32 inches: clay loam
C - 32 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 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 (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R102DY012SD - Thin Upland
Forage suitability group: Limy Upland (G102AY400SD)
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Description of Waubay

Setting

Landform: Swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Periglacial loess

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 31 inches: silty clay loam
Bk - 31 to 50 inches: silt loam
C - 50 to 79 inches: silt loam

Properties and qualities

Slope: 1 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 (0.20 to 0.60 in/hr)
Depth to water table: About 30 to 41 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very high (about 12.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Ecological site: R102DY020SD - Loamy Overflow
Forage suitability group: Overflow (G102AY500SD)
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Minor Components

Cubden

Percent of map unit: 3 percent
Landform: Rims on drainageways
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Badger

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 2 percent
Landform: Closed depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Parnell, undrained

Percent of map unit: 2 percent
Landform: Closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY001SD - Shallow Marsh
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

PsC—Poinsett-Buse-Waubay complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2tlc9
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Poinsett and similar soils: 40 percent
Buse and similar soils: 35 percent
Waubay and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Poinsett

Setting

Landform: Plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Periglacial loess over loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bw - 8 to 24 inches: silty clay loam
Bk - 24 to 62 inches: silty clay loam
2C - 62 to 79 inches: clay loam

Properties and qualities

Slope: 6 to 9 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: About 49 to 61 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Description of Buse

Setting

Landform: Plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till

Typical profile

Ap - 0 to 8 inches: loam
Bk - 8 to 32 inches: clay loam
C - 32 to 79 inches: clay loam

Properties and qualities

Slope: 6 to 9 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 (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R102DY012SD - Thin Upland
Forage suitability group: Limy Upland (G102AY400SD)
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Description of Waubay

Setting

Landform: Swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Periglacial loess

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 31 inches: silty clay loam
Bk - 31 to 50 inches: silt loam
C - 50 to 79 inches: silt loam

Properties and qualities

Slope: 2 to 6 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 30 to 41 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R102DY020SD - Loamy Overflow
Forage suitability group: Overflow (G102AY500SD)
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Minor Components

Cubden

Percent of map unit: 3 percent
Landform: Rims on closed depressions
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Badger

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 2 percent
Landform: Closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow

Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Parnell, undrained
Percent of map unit: 2 percent
Landform: Closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY001SD - Shallow Marsh
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

PwA—Poinsett-Waubay silty clay loams, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2t5qv
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Poinsett and similar soils: 60 percent
Waubay and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Poinsett

Setting
Landform: Plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Periglacial loess over loamy till

Typical profile
Ap - 0 to 8 inches: silty clay loam
Bw - 8 to 24 inches: silty clay loam
Bk - 24 to 62 inches: silty clay loam
2C - 62 to 79 inches: clay loam

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 (0.20 to 0.60 in/hr)
Depth to water table: About 49 to 61 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Description of Waubay

Setting

Landform: Swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Periglacial loess

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 31 inches: silty clay loam
Bk - 31 to 50 inches: silt loam
C - 50 to 79 inches: silt loam

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 (0.20 to 0.60 in/hr)
Depth to water table: About 30 to 41 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Ecological site: R102DY020SD - Loamy Overflow
Forage suitability group: Overflow (G102AY500SD)
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Minor Components

Cubden

Percent of map unit: 4 percent
Landform: Rims on swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 4 percent
Landform: Potholes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Rusklyn

Percent of map unit: 2 percent
Landform: Plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102AY012SD - Thin Upland
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

PwB—Poinsett-Waubay silty clay loams, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2rkz3
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Poinsett and similar soils: 65 percent
Waubay and similar soils: 25 percent

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

Description of Poinsett

Setting

Landform: Plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Periglacial loess over loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bw - 8 to 24 inches: silty clay loam
Bk - 24 to 62 inches: silty clay loam
2C - 62 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 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: About 49 to 61 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Description of Waubay

Setting

Landform: Swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Periglacial loess

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 31 inches: silty clay loam
Bk - 31 to 50 inches: silt loam
C - 50 to 79 inches: silt loam

Properties and qualities

Slope: 1 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 (0.20 to 0.60 in/hr)
Depth to water table: About 30 to 41 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Ecological site: R102DY020SD - Loamy Overflow
Forage suitability group: Overflow (G102AY500SD)
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Minor Components

Buse

Percent of map unit: 6 percent
Landform: Plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102AY012SD - Thin Upland
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Cubden

Percent of map unit: 2 percent
Landform: Rims on swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 2 percent
Landform: Potholes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Ra—Rauville silty clay loam

Map Unit Setting

National map unit symbol: g07j
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Rauville

Setting

Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium over outwash

Typical profile

H1 - 0 to 9 inches: silty clay loam
H2 - 9 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
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 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: R102DY002SD - Linear Meadow
Forage suitability group: Not suited (G102AY000SD)

Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Minor Components

Marysland, undrained
Percent of map unit: 6 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Lamoure
Percent of map unit: 4 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: Yes

Playmoor
Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY007SD - Saline Lowland
Other vegetative classification: Saline (G102AY895SD)
Hydric soil rating: Yes

Divide
Percent of map unit: 2 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

So—Southam silty clay loam, 0 to 1 percent slopes

Map Unit Setting
National map unit symbol: 2wbpr
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches

Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Southam

Setting

Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Local alluvium

Typical profile

Ag1 - 0 to 15 inches: silty clay loam
Ag2 - 15 to 44 inches: silty clay
Cg - 44 to 79 inches: silty clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: C/D
Ecological site: R102DY037SD - Deep Marsh
Forage suitability group: Not suited (G102AY000SD)
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Minor Components

Vallers

Percent of map unit: 6 percent
Landform: Rims on depressions
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Hamerly

Percent of map unit: 4 percent

Landform: Rims on depressions
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

To—Tonka silty clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tlc4
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Tonka

Setting

Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Local alluvium over loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 14 inches: silty clay loam
E - 14 to 24 inches: silt loam
Bt - 24 to 40 inches: silty clay
Cg1 - 40 to 54 inches: silty clay loam
2Cg2 - 54 to 79 inches: clay loam

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): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: R102DY004SD - Wet Meadow
Forage suitability group: Wet (G102AY900SD)
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Minor Components

Cubden

Percent of map unit: 5 percent
Landform: Rims on depressions
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Vallers

Percent of map unit: 2 percent
Landform: Rims on depressions
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Hamerly

Percent of map unit: 2 percent
Landform: Rims on depressions
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Parnell

Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY001SD - Shallow Marsh
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

W—Water

Map Unit Setting

National map unit symbol: 2wx3y
Elevation: 970 to 3,940 feet
Mean annual precipitation: 13 to 31 inches
Mean annual air temperature: 39 to 50 degrees F
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Wa—Waubay silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2rkz4
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Waubay

Setting

Landform: Swales
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Periglacial loess

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 31 inches: silty clay loam
Bk - 31 to 50 inches: silt loam
C - 50 to 79 inches: silt loam

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 (0.20 to 0.60 in/hr)
Depth to water table: About 30 to 41 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Ecological site: R102DY020SD - Loamy Overflow
Forage suitability group: Overflow (G102AY500SD)
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Minor Components

Poinsett

Percent of map unit: 4 percent
Landform: Plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Badger

Percent of map unit: 2 percent
Landform: Swales
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Cubden

Percent of map unit: 2 percent
Landform: Rims on swales

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Tonka, undrained

Percent of map unit: 2 percent
Landform: Potholes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Z150A—Rauville silty clay loam, coteau, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2qjmv
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Rauville, Frequently Flooded

Setting

Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium over outwash

Typical profile

A1 - 0 to 7 inches: silty clay loam
A2 - 7 to 27 inches: silty clay loam
Cg1 - 27 to 45 inches: silty clay loam
2Cg2 - 45 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: R102DY002SD - Linear Meadow
Forage suitability group: Not suited (G102AY000SD)
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Minor Components

Marysland, occasionally flooded

Percent of map unit: 7 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Lamoure, occasionally flooded

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Divide, occasionally flooded

Percent of map unit: 3 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Z152A—Lamoure silty clay loam, coteau, 0 to 1 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2qjmw
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Lamoure, Occasionally Flooded

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

Ap - 0 to 8 inches: silty clay loam
A1 - 8 to 17 inches: silty clay loam
A2 - 17 to 28 inches: silty clay loam
Cg - 28 to 50 inches: silty clay loam
Ab - 50 to 57 inches: silty clay loam
2Cg - 57 to 60 inches: gravelly loam

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 high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: High (about 11.9 inches)

Interpretive groups

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

Hydrologic Soil Group: B/D
Ecological site: R102DY003SD - Subirrigated
Forage suitability group: Subirrigated (G102AY700SD)
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Minor Components

Rauville, frequently flooded
Percent of map unit: 5 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Lamoure, frequently flooded
Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

La prairie, occasionally flooded
Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Divide, occasionally flooded
Percent of map unit: 2 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Ludden, frequently flooded
Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Z159A—Divide loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2qjn1
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Divide, Occasionally Flooded

Setting

Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium over outwash

Typical profile

Ap - 0 to 7 inches: loam
Ak - 7 to 13 inches: loam
Bk1 - 13 to 19 inches: loam
Bk2 - 19 to 26 inches: loam
2C1 - 26 to 31 inches: gravelly loamy sand
2C2 - 31 to 80 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 0 to 2 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 high to high (0.60 to 2.00 in/hr)
Depth to water table: About 16 to 28 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B/D

Ecological site: R102DY006SD - Limy Subirrigated
Forage suitability group: Subirrigated (G102AY700SD)
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Minor Components

Marysland, occasionally flooded
Percent of map unit: 10 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Moritz, occasionally flooded
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Renwash, rarely flooded
Percent of map unit: 3 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY014SD - Shallow Gravel
Other vegetative classification: Very Droughty Loam (G102AY130SD)
Hydric soil rating: No

Fordtown, rarely flooded
Percent of map unit: 2 percent
Landform: Flood plains on outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Droughty Loam (G102AY120SD)
Hydric soil rating: No

Z181A—Brandt silty clay loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2wkq2

Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Brandt

Setting

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

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bw - 8 to 34 inches: silty clay loam
Bk1 - 34 to 43 inches: silt loam
2Bk2 - 43 to 53 inches: gravelly loamy sand
2C - 53 to 79 inches: very gravelly loamy sand

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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Minor Components

Estelline

Percent of map unit: 6 percent
Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear

Ecological site: R102AY010SD - Loamy
Other vegetative classification: Droughty Loam (G102AY120SD)
Hydric soil rating: No

Goldsmith

Percent of map unit: 3 percent
Landform: Outwash plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Badger

Percent of map unit: 1 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Z181B—Brandt silty clay loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2wkq3
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Brandt

Setting

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

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bw - 8 to 34 inches: silty clay loam
Bk1 - 34 to 43 inches: silt loam

2Bk2 - 43 to 53 inches: gravelly loamy sand
2C - 53 to 79 inches: very gravelly loamy sand

Properties and qualities

Slope: 2 to 6 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
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Minor Components

Estelline

Percent of map unit: 7 percent
Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Droughty Loam (G102AY120SD)
Hydric soil rating: No

Goldsmith

Percent of map unit: 2 percent
Landform: Outwash plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Badger

Percent of map unit: 1 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Z182B—Estelline silt loam, coteau, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2wkq1
Elevation: 920 to 2,130 feet
Mean annual precipitation: 22 to 31 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Estelline

Setting

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

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 22 inches: silt loam
Bk1 - 22 to 33 inches: silt loam
2Bk2 - 33 to 43 inches: gravelly loamy sand
2C - 43 to 79 inches: very gravelly loamy sand

Properties and qualities

Slope: 2 to 6 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 (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: R102DY010SD - Loamy
Forage suitability group: Droughty Loam (G102AY120SD)

Other vegetative classification: Droughty Loam (G102AY120SD)
Hydric soil rating: No

Minor Components

Renshaw
Percent of map unit: 6 percent
Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY014SD - Shallow Gravel
Other vegetative classification: Very Droughty Loam (G102AY130SD)
Hydric soil rating: No

Kranzburg
Percent of map unit: 4 percent
Landform: Ground moraines
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY010SD - Loamy
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Kampeska
Percent of map unit: 2 percent
Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102AY012SD - Thin Upland
Other vegetative classification: Droughty Loam (G102AY120SD)
Hydric soil rating: No

Goldsmith
Percent of map unit: 2 percent
Landform: Outwash plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY020SD - Loamy Overflow
Other vegetative classification: Overflow (G102AY500SD)
Hydric soil rating: No

Sioux
Percent of map unit: 1 percent
Landform: Outwash plains
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R102AY016SD - Very Shallow
Other vegetative classification: Shallow (G102AY003SD)
Hydric soil rating: No

Z201A—Minnewaukan loamy sand, occasionally ponded, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2qkm8
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 19 to 29 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Minnewaukan, Occasionally Ponded

Setting

Landform: Beach plains on outwash plains
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Beach sand

Typical profile

A - 0 to 5 inches: loamy sand
AC - 5 to 9 inches: loamy sand
C1 - 9 to 12 inches: sand
C2 - 12 to 17 inches: sand
C3 - 17 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A/D
Ecological site: R102DY003SD - Subirrigated
Forage suitability group: Wet (G102AY900SD)
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Minor Components

Minnewasta, occasionally ponded
Percent of map unit: 7 percent
Landform: Beach plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Wamduska, occasionally ponded
Percent of map unit: 5 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY016SD - Very Shallow
Other vegetative classification: Shallow (G102AY003SD)
Hydric soil rating: No

Mauvais, occasionally ponded
Percent of map unit: 3 percent
Landform: Wave-cut platforms
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

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.

Disaster Recovery Planning

Disaster recovery planning interpretations are tools for evaluating the suitability of soil for various aspects of recovery operations in response to catastrophic events such as hurricanes, earthquakes, large fires, or terrorist attacks. Example interpretations include burial of large numbers of dead cattle, disposal of large amounts of debris, and composting of vegetative materials.

Clay Liner Material Source (TRAVIS POPHAM)

DHS - Department of Homeland Security

Using natural clayey soil material to line the bottom of a landfill pit is a method of assist in the sealing the pit that may have excessively high water transmission capabilities in the soil layer below the excavation. This interpretation shows the degree and kinds of properties that make soil material suitable for use as a clay liner.

The soil is evaluated from the surface to 79 inches. The ratings are based on the soil properties that affect ease of excavation, compactability of the material, the thickness of the soil layer, reclamation of the area, and erosion from the site.

Soils that flood or have a water table within the depth of excavation present a potential pollution hazard and are difficult to excavate. Soils that are shallow to bedrock, ice, a cemented pan, or stones and boulders are limited because these features interfere with the excavation of the site or the suitability of the material. Slope is an important consideration because it affects the work involved in road

construction, the performance of the roads, and the control of surface water around the borrow area.

The ratings are both verbal and numerical. Numerical ratings in the table indicate the level of suitability of the soil as a clay liner source. The ratings are shown in decimal fractions ranging from 1.00 to 0.01. They indicate gradations between the point at which a soil feature has the greatest positive impact on the use (1.00) and the point at which the soil feature has the greatest negative impact (0.00).

Rating class terms indicate the extent to which the soils are made suitable by all of the soil features that affect the suitability of soil material for this use. "Good" indicates that the soil has characteristics that are favorable for the specified use. The liner will have good performance and the material will not need any amendments to enhance its performance. "Fair" indicates that the soil has features that are moderately favorable for the specified use. The suitability as a liner may be enhanced by making a thicker layer, or adding bentonite to the soil material used for the liner. The soil may be difficult to work or contain rock fragments. "Poor" indicates that the soil has one or more features that are unfavorable for the specified use. While any material could be used as a clay liner, a poorly suited material will require large amounts of bentonite or other sealing material in order to achieve the expected level of performance.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

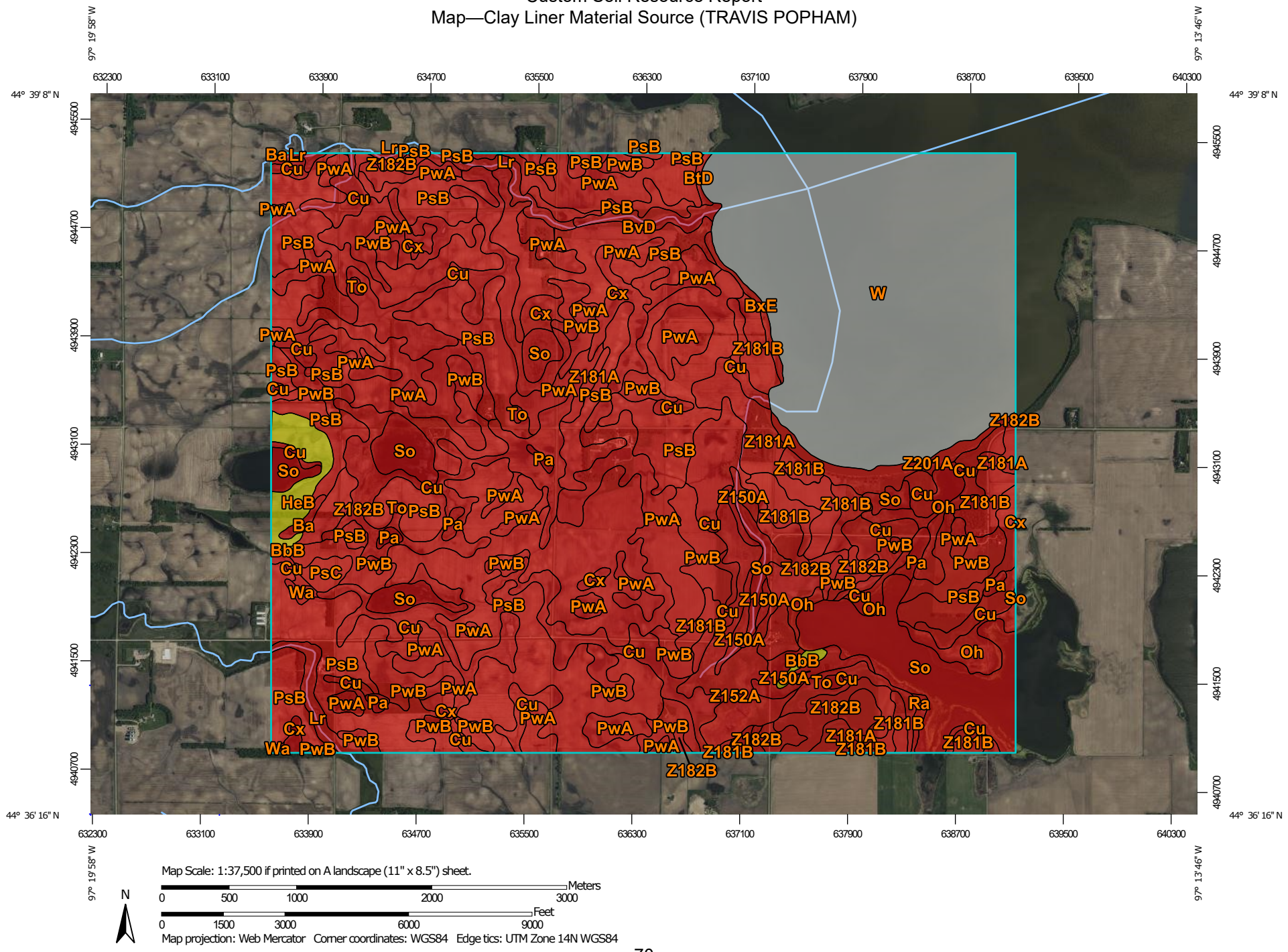
Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

References:

USDA. Natural Resources Conservation Service. 1997. Agricultural Waste management Field Handbook. Chapter 10. 31 pages.

US Army Corps of Engineers. August 2004. Unified Facilities Guide Specifications No. 023377. 17 pages. http://www.ccb.org/docs/ufgshome/pdf/02377.pdf

Map—Clay Liner Material Source (TRAVIS POPHAM)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Poor
- Fair
- Good
- Not rated or not available

Soil Rating Lines

- Poor
- Fair
- Good
- Not rated or not available

Soil Rating Points

- Poor
- Fair
- Good
- Not rated or not available

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 1:20,000.

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: Hamlin County, South Dakota
Survey Area Data: Version 26, Aug 30, 2024

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

Date(s) aerial images were photographed: Jun 1, 2022—Jun 12, 2022

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.

Tables—Clay Liner Material Source (TRAVIS POPHAM)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Ba	Badger silty clay loam, 0 to 1 percent slopes	Poor	Badger (90%)	Wetness (0.00)	7.3	0.1%
				Flooding (0.00)		
				Hard to pack (0.23)		
				Area reclaim difficulty (0.68)		
				Small stone content (1.00)		
			Cubden (3%)	Wetness (0.00)		
				Hard to pack (0.01)		
				Area reclaim difficulty (0.47)		
				Small stone content (0.99)		
				Moderate gypsum content (0.99)		
			Waubay (3%)	Wetness (0.00)		
				Hard to pack (0.02)		
				Area reclaim difficulty (0.68)		
			Tonka, undrained (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.25)		
				Area reclaim difficulty (0.68)		
				Small stone content (0.98)		
			Parnell (1%)	Wetness (0.00)		
				Ponding (0.00)		
				Area reclaim difficulty (0.68)		
				Hard to pack (0.72)		
			Badger, poorly drained (1%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.23)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.68)		
				Small stone content (1.00)		
BbB	Barnes-Buse loams, coteau, 2 to 6 percent slopes	Fair	Barnes (60%)	Hard to pack (0.04)	10.9	0.2%
				Wetness (0.13)		
				Slope (0.80)		
				Small stone content (0.87)		
				Large stones favorable (0.92)		
			Buse (30%)	Hard to pack (0.04)		
				Area reclaim difficulty (0.51)		
				Slope (0.60)		
				Small stone content (0.88)		
				Large stones favorable (0.92)		
BtD	Buse-Barnes loams, 9 to 20 percent slopes	Poor	Buse (50%)	Slope (0.00)	4.5	0.1%
				Hard to pack (0.04)		
				Area reclaim difficulty (0.51)		
				Small stone content (0.88)		
				Large stones favorable (0.92)		
			Barnes (40%)	Slope (0.00)		
				Hard to pack (0.04)		
				Wetness (0.13)		
				Small stone content (0.87)		
				Large stones favorable (0.92)		
			Svea (4%)	Wetness (0.00)		
				Hard to pack (0.05)		
				Slope (0.60)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Small stone content (0.86)		
				Large stones favorable (0.92)		
			Sioux (2%)	Hard to pack (0.00)		
				Slope (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.50)		
				Large stones favorable (0.68)		
			Holmquist (1%)	Hard to pack (0.00)		
				Wetness (0.00)		
				Flooding (0.00)		
				Area reclaim difficulty (0.60)		
				Moderate gypsum content (0.78)		
			Parnell, undrained (1%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.51)		
			Tonka, undrained (1%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.25)		
				Area reclaim difficulty (0.68)		
				Small stone content (0.98)		
			Buse, very stony (1%)	Slope (0.00)		
				Hard to pack (0.04)		
				Area reclaim difficulty (0.51)		
				Small stone content (0.88)		
				Large stones favorable (0.92)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BvD	Buse-Lamoure, channeled, complex, 0 to 40 percent slopes	Poor	Buse (50%)	Slope (0.00)	27.5	0.5%
				Hard to pack (0.00)		
				Area reclaim difficulty (0.40)		
				Small stone content (0.88)		
			Lamoure, channeled (30%)	Wetness (0.00)		
				Flooding (0.00)		
				Area reclaim difficulty (0.40)		
				Hard to pack (0.50)		
			Rauville (7%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.38)		
				Area reclaim difficulty (0.40)		
				Moderate gypsum content (0.92)		
			Barnes (5%)	Slope (0.00)		
				Hard to pack (0.00)		
				Large stones favorable (0.32)		
				Small stone content (0.88)		
				Moderate gypsum content (0.96)		
			Sioux (3%)	Hard to pack (0.00)		
				Small stones (0.00)		
				Slope (0.00)		
				Large stones favorable (0.32)		
				Area reclaim difficulty (0.56)		
BxE	Buse-Langhei complex, 15 to 40 percent slopes	Poor	Buse (50%)	Slope (0.00)	13.4	0.2%
				Hard to pack (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.40)		
				Small stone content (0.88)		
			Langhei (35%)	Slope (0.00)		
				Hard to pack (0.08)		
				Area reclaim difficulty (0.36)		
				Small stone content (0.97)		
			Barnes (3%)	Slope (0.00)		
				Hard to pack (0.00)		
				Large stones favorable (0.32)		
				Small stone content (0.88)		
				Moderate gypsum content (0.96)		
			Svea (3%)	Hard to pack (0.00)		
				Wetness (0.10)		
				Large stones favorable (0.32)		
				Moderate gypsum content (0.78)		
				Slope (0.80)		
			Vienna (3%)	Slope (0.00)		
				Hard to pack (0.02)		
				Large stones favorable (0.41)		
				Area reclaim difficulty (0.90)		
				Small stone content (0.95)		
			Sioux (2%)	Hard to pack (0.00)		
				Small stones (0.00)		
				Slope (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Large stones favorable (0.32)		
				Area reclaim difficulty (0.56)		
			Lamoure (1%)	Wetness (0.00)		
				Area reclaim difficulty (0.40)		
				Flooding (0.50)		
				Hard to pack (0.50)		
Cu	Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes	Poor	Cubden (50%)	Wetness (0.00)	834.0	13.7%
				Hard to pack (0.01)		
				Area reclaim difficulty (0.47)		
				Small stone content (0.99)		
				Moderate gypsum content (0.99)		
			Badger (40%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.23)		
				Area reclaim difficulty (0.68)		
				Small stone content (1.00)		
			Waubay (4%)	Wetness (0.00)		
				Hard to pack (0.02)		
				Area reclaim difficulty (0.68)		
			Badger, poorly drained (2%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.23)		
				Area reclaim difficulty (0.68)		
				Small stone content (1.00)		
			Cubden, moderately saline (2%)	Wetness (0.00)		
				Hard to pack (0.01)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.47)		
				High gypsum content (0.68)		
				Small stone content (0.99)		
			Tonka, undrained (1%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.25)		
				Area reclaim difficulty (0.68)		
				Small stone content (0.98)		
Cx	Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes	Poor	Cubden (55%)	Wetness (0.00)	101.1	1.7%
				Hard to pack (0.01)		
				Area reclaim difficulty (0.47)		
				Small stone content (0.99)		
				Moderate gypsum content (0.99)		
			Tonka, undrained (35%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.24)		
				Area reclaim difficulty (0.68)		
				Small stone content (0.98)		
			Badger (3%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.53)		
				Area reclaim difficulty (0.75)		
				Moderate gypsum content (1.00)		
			Cubden, moderately saline (2%)	Wetness (0.00)		
				Hard to pack (0.01)		
				Area reclaim difficulty (0.47)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				High gypsum content (0.68)		
				Small stone content (0.99)		
			Parnell (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Area reclaim difficulty (0.68)		
				Hard to pack (0.72)		
			Waubay (2%)	Wetness (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.68)		
			Badger, poorly drained (1%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.53)		
				Area reclaim difficulty (0.75)		
				Moderate gypsum content (1.00)		
HeB	Hetland silty clay loam, 2 to 6 percent slopes	Fair	Hetland (85%)	Wetness (0.13)	56.8	0.9%
				Hard to pack (0.39)		
				Slope (0.80)		
				Area reclaim difficulty (0.82)		
			Buse (3%)	Hard to pack (0.13)		
				Area reclaim difficulty (0.41)		
				Slope (0.60)		
				Small stone content (0.88)		
				Large stones favorable (0.92)		
Lr	Lamoure-Rauville silty clay loams, channeled	Poor	Lamoure, channeled (60%)	Wetness (0.00)	62.4	1.0%
				Flooding (0.00)		
				Area reclaim difficulty (0.40)		
				Hard to pack (0.50)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Rauville (25%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.38)		
				Area reclaim difficulty (0.40)		
				Moderate gypsum content (0.92)		
			Divide (5%)	Hard to pack (0.00)		
				Wetness (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.40)		
				Large stones favorable (0.45)		
			Buse (5%)	Hard to pack (0.00)		
				Area reclaim difficulty (0.40)		
				Slope (0.60)		
				Small stone content (0.88)		
			Marysland, undrained (5%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.20)		
				Small stone content (0.45)		
Oh	Oldham silty clay loam	Poor	Oldham (85%)	Wetness (0.00)	82.9	1.4%
				Ponding (0.00)		
				Area reclaim difficulty (0.13)		
				Hard to pack (0.25)		
				Moderate gypsum content (0.69)		
			Southam (4%)	Wetness (0.00)		
				Ponding (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				High gypsum content (0.32)		
				Area reclaim difficulty (0.67)		
				Hard to pack (0.69)		
			Colvin (4%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.02)		
				Area reclaim difficulty (0.56)		
				Moderate gypsum content (0.69)		
			Vallers (3%)	Wetness (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.40)		
				Moderate gypsum content (0.92)		
				Small stone content (0.97)		
			Playmoor (2%)	Wetness (0.00)		
				Flooding (0.00)		
				Area reclaim difficulty (0.20)		
				Hard to pack (0.28)		
				High gypsum content (0.68)		
			Mauvais (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.00)		
				Large stones favorable (0.08)		
				Area reclaim difficulty (0.52)		
Pa	Parnell silty clay loam	Poor	Parnell, undrained (85%)	Wetness (0.00)	30.9	0.5%
				Ponding (0.00)		
				Hard to pack (0.74)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.76)		
				Moderate gypsum content (0.95)		
			Vallers (4%)	Wetness (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.40)		
				Moderate gypsum content (0.92)		
				Small stone content (0.97)		
			Cubden (4%)	Wetness (0.00)		
				Hard to pack (0.05)		
				Area reclaim difficulty (0.60)		
			Colvin (4%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.02)		
				Area reclaim difficulty (0.56)		
				Moderate gypsum content (0.69)		
			Tonka, undrained (3%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.14)		
				Large stones favorable (0.57)		
				Moderate gypsum content (0.95)		
PsB	Poinsett-Buse-Waubay complex, 1 to 6 percent slopes	Poor	Poinsett (40%)	Hard to pack (0.00)	1,633.3	26.9%
				Wetness (0.13)		
				Area reclaim difficulty (0.68)		
				Slope (0.80)		
				Small stone content (0.99)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Waubay (20%)	Wetness (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.68)		
			Badger (3%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.53)		
				Area reclaim difficulty (0.75)		
				Moderate gypsum content (1.00)		
			Cubden (3%)	Wetness (0.00)		
				Hard to pack (0.06)		
				Area reclaim difficulty (0.50)		
				Moderate gypsum content (1.00)		
				Small stone content (1.00)		
			Parnell, undrained (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Area reclaim difficulty (0.68)		
				Hard to pack (0.72)		
				Small stone content (0.98)		
			Tonka, undrained (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.36)		
				Large stones favorable (0.55)		
				Area reclaim difficulty (0.90)		
PsC	Poinsett-Buse-Waubay complex, 2 to 9 percent slopes	Poor	Poinsett (40%)	Hard to pack (0.00)	25.9	0.4%
				Wetness (0.13)		
				Slope (0.20)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.68)		
				Small stone content (0.99)		
			Buse (35%)	Slope (0.00)		
				Hard to pack (0.04)		
				Area reclaim difficulty (0.51)		
				Small stone content (0.88)		
				Large stones favorable (0.92)		
			Waubay (15%)	Wetness (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.68)		
				Slope (0.80)		
			Cubden (3%)	Wetness (0.00)		
				Hard to pack (0.01)		
				Area reclaim difficulty (0.47)		
				Small stone content (0.99)		
				Moderate gypsum content (0.99)		
			Badger (3%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.53)		
				Area reclaim difficulty (0.75)		
				Moderate gypsum content (1.00)		
			Tonka, undrained (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.24)		
				Area reclaim difficulty (0.68)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Small stone content (0.98)		
			Parnell, undrained (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Area reclaim difficulty (0.68)		
				Hard to pack (0.72)		
				Small stone content (0.98)		
PwA	Poinsett-Waubay silty clay loams, 0 to 2 percent slopes	Poor	Poinsett (60%)	Hard to pack (0.00)	693.8	11.4%
				Wetness (0.13)		
				Area reclaim difficulty (0.68)		
				Small stone content (0.99)		
			Waubay (30%)	Wetness (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.68)		
			Cubden (4%)	Wetness (0.00)		
				Hard to pack (0.06)		
				Area reclaim difficulty (0.50)		
				Moderate gypsum content (1.00)		
				Small stone content (1.00)		
			Tonka, undrained (4%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.36)		
				Large stones favorable (0.55)		
				Area reclaim difficulty (0.90)		
PwB	Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	Poor	Poinsett (65%)	Hard to pack (0.00)	372.6	6.1%
				Wetness (0.13)		
				Area reclaim difficulty (0.68)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slope (0.80)		
				Small stone content (0.99)		
			Waubay (25%)	Wetness (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.68)		
			Cubden (2%)	Wetness (0.00)		
				Hard to pack (0.06)		
				Area reclaim difficulty (0.50)		
				Moderate gypsum content (1.00)		
				Small stone content (1.00)		
			Tonka, undrained (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.36)		
				Large stones favorable (0.55)		
				Area reclaim difficulty (0.90)		
Ra	Rauville silty clay loam	Poor	Rauville (85%)	Wetness (0.00)	6.4	0.1%
				Flooding (0.00)		
				Hard to pack (0.38)		
				Area reclaim difficulty (0.40)		
				Moderate gypsum content (0.92)		
			Marysland, undrained (6%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.00)		
				Area reclaim difficulty (0.20)		
				Small stone content (0.45)		
			Lamoure (4%)	Wetness (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.40)		
				Flooding (0.50)		
				Hard to pack (0.50)		
			Playmoor (3%)	Wetness (0.00)		
				Flooding (0.00)		
				Area reclaim difficulty (0.20)		
				Hard to pack (0.28)		
				High gypsum content (0.68)		
			Divide (2%)	Hard to pack (0.00)		
				Wetness (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.40)		
				Large stones favorable (0.45)		
So	Southam silty clay loam, 0 to 1 percent slopes	Poor	Southam (90%)	Wetness (0.00)	351.8	5.8%
				Ponding (0.00)		
				Hard to pack (0.59)		
				Area reclaim difficulty (0.80)		
			Vallers (6%)	Wetness (0.00)		
				Hard to pack (0.12)		
				Area reclaim difficulty (0.52)		
				Moderate gypsum content (0.71)		
				Large stones favorable (0.92)		
			Hamerly (4%)	Wetness (0.00)		
				Hard to pack (0.08)		
				Area reclaim difficulty (0.45)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Small stone content (0.88)		
				Moderate gypsum content (0.92)		
To	Tonka silty clay loam, 0 to 1 percent slopes	Poor	Tonka (90%)	Wetness (0.00)	8.9	0.1%
				Ponding (0.00)		
				Hard to pack (0.24)		
				Area reclaim difficulty (0.68)		
				Small stone content (0.98)		
			Cubden (5%)	Wetness (0.00)		
				Hard to pack (0.01)		
				Area reclaim difficulty (0.47)		
				Small stone content (0.99)		
				Moderate gypsum content (0.99)		
			Vallers (2%)	Wetness (0.00)		
				Hard to pack (0.12)		
				Area reclaim difficulty (0.52)		
				Moderate gypsum content (0.71)		
				Large stones favorable (0.92)		
			Hamerly (2%)	Wetness (0.00)		
				Hard to pack (0.08)		
				Area reclaim difficulty (0.45)		
				Small stone content (0.88)		
				Moderate gypsum content (0.92)		
			Parnell (1%)	Wetness (0.00)		
				Ponding (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.68)		
				Hard to pack (0.72)		
W	Water	Not rated	Water (100%)		1,085.5	17.9%
Wa	Waubay silty clay loam, 0 to 2 percent slopes	Poor	Waubay (90%)	Wetness (0.00)	7.0	0.1%
				Hard to pack (0.00)		
				Area reclaim difficulty (0.68)		
			Poinsett (4%)	Hard to pack (0.00)		
				Wetness (0.13)		
				Area reclaim difficulty (0.68)		
				Small stone content (0.99)		
			Tonka, undrained (2%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.36)		
				Large stones favorable (0.55)		
				Area reclaim difficulty (0.90)		
			Cubden (2%)	Wetness (0.00)		
				Hard to pack (0.06)		
				Area reclaim difficulty (0.50)		
				Moderate gypsum content (1.00)		
				Small stone content (1.00)		
			Badger (2%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.53)		
				Area reclaim difficulty (0.75)		
				Moderate gypsum content (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Z150A	Rauville silty clay loam, coteau, 0 to 1 percent slopes, frequently flooded	Poor	Rauville, frequently flooded (85%)	Wetness (0.00)	61.3	1.0%
				Flooding (0.00)		
				Hard to pack (0.22)		
				Area reclaim difficulty (0.40)		
				Small stone content (0.94)		
			Marysland, occasionally flooded (7%)	Hard to pack (0.00)		
				Wetness (0.00)		
				Small stone content (0.00)		
				Area reclaim difficulty (0.44)		
				Flooding (0.50)		
			Lamoure, occasionally flooded (5%)	Wetness (0.00)		
				Hard to pack (0.27)		
				Flooding (0.50)		
				Area reclaim difficulty (0.60)		
				Small stone content (0.99)		
			Divide, occasionally flooded (3%)	Hard to pack (0.00)		
				Wetness (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.45)		
				Flooding (0.50)		
Z152A	Lamoure silty clay loam, coteau, 0 to 1 percent slopes, occasionally flooded	Poor	Lamoure, occasionally flooded (85%)	Wetness (0.00)	117.0	1.9%
				Hard to pack (0.27)		
				Flooding (0.50)		
				Area reclaim difficulty (0.60)		
				Small stone content (0.99)		
			Rauville, frequently flooded (5%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.22)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.40)		
				Small stone content (0.94)		
			La Prairie, occasionally flooded (3%)	Wetness (0.00)		
				Hard to pack (0.10)		
				Flooding (0.50)		
				Area reclaim difficulty (0.80)		
				Moderate gypsum content (0.92)		
			Lamoure, frequently flooded (3%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.27)		
				Area reclaim difficulty (0.60)		
				Small stone content (0.99)		
			Ludden, frequently flooded (2%)	Wetness (0.00)		
				Flooding (0.00)		
				Area reclaim difficult (0.00)		
				Hard to pack (0.84)		
				Moderate gypsum content (0.96)		
			Divide, occasionally flooded (2%)	Hard to pack (0.00)		
				Wetness (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.45)		
				Flooding (0.50)		
Z159A	Divide loam, 0 to 2 percent slopes, occasionally flooded	Poor	Divide, occasionally flooded (80%)	Hard to pack (0.00)	5.8	0.1%
				Wetness (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.45)		
				Flooding (0.50)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Marysland, occasionally flooded (10%)	Hard to pack (0.00)		
				Wetness (0.00)		
				Small stone content (0.00)		
				Area reclaim difficulty (0.44)		
				Flooding (0.50)		
			Moritz, occasionally flooded (5%)	Wetness (0.00)		
				Hard to pack (0.09)		
				Flooding (0.50)		
				Area reclaim difficulty (0.54)		
				Moderate gypsum content (0.70)		
			Renwash, rarely flooded (3%)	Hard to pack (0.00)		
				Small stones (0.00)		
				Wetness (0.02)		
				Large stones favorable (0.94)		
			Fordtown, rarely flooded (2%)	Hard to pack (0.00)		
				Small stones (0.00)		
				Wetness (0.02)		
				Large stones favorable (0.92)		
Z181A	Brandt silty clay loam, 0 to 2 percent slopes	Poor	Brandt (90%)	Hard to pack (0.00)	142.6	2.4%
				Small stones (0.00)		
				Area reclaim difficulty (0.68)		
				Large stones favorable (0.91)		
			Estelline (6%)	Hard to pack (0.00)		
				Small stones (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Area reclaim difficulty (0.68)		
				Large stones favorable (0.85)		
			Goldsmith (3%)	Hard to pack (0.00)		
				Small stone content (0.16)		
				Area reclaim difficulty (0.68)		
				Large stones favorable (0.94)		
				Moderate gypsum content (0.99)		
			Badger (1%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.53)		
				Area reclaim difficulty (0.75)		
				Moderate gypsum content (1.00)		
Z181B	Brandt silty clay loam, 2 to 6 percent slopes	Poor	Brandt (90%)	Hard to pack (0.00)	174.1	2.9%
				Small stones (0.00)		
				Area reclaim difficulty (0.68)		
				Slope (0.80)		
				Large stones favorable (0.91)		
			Estelline (7%)	Hard to pack (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.68)		
				Slope (0.80)		
				Large stones favorable (0.85)		
			Goldsmith (2%)	Hard to pack (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Small stone content (0.16)		
				Area reclaim difficulty (0.68)		
				Large stones favorable (0.94)		
				Moderate gypsum content (0.99)		
			Badger (1%)	Wetness (0.00)		
				Flooding (0.00)		
				Hard to pack (0.53)		
				Area reclaim difficulty (0.75)		
				Moderate gypsum content (1.00)		
Z182B	Estelline silt loam, coteau, 2 to 6 percent slopes	Poor	Estelline (85%)	Hard to pack (0.00)	97.6	1.6%
				Small stones (0.00)		
				Area reclaim difficulty (0.68)		
				Slope (0.80)		
				Large stones favorable (0.85)		
			Renshaw (6%)	Hard to pack (0.00)		
				Small stones (0.00)		
				Large stones favorable (0.69)		
				Slope (0.80)		
				Area reclaim difficulty (0.96)		
			Kampeska (2%)	Hard to pack (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.51)		
				Slope (0.60)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Large stones favorable (0.95)		
			Goldsmith (2%)	Hard to pack (0.00)		
				Small stone content (0.16)		
				Area reclaim difficulty (0.68)		
				Large stones favorable (0.94)		
				Moderate gypsum content (0.99)		
			Sioux (1%)	Hard to pack (0.00)		
				Small stones (0.00)		
				Area reclaim difficulty (0.50)		
				Slope (0.60)		
				Large stones favorable (0.68)		
Z201A	Minnewaukan loamy sand, occasionally ponded, 0 to 3 percent slopes	Poor	Minnewaukan, occasionally ponded (85%)	Hard to pack (0.00)	50.0	0.8%
				Wetness (0.00)		
				Ponding (0.00)		
				Area reclaim difficult (0.00)		
				Moderate gypsum content (0.92)		
			Minnewasta, occasionally ponded (7%)	Wetness (0.00)		
				Ponding (0.00)		
				Area reclaim difficult (0.00)		
				Hard to pack (0.06)		
				Moderate gypsum content (0.77)		
			Wamduska, occasionally ponded (5%)	Hard to pack (0.00)		
				Ponding (0.00)		
				Area reclaim difficult (0.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Small stones (0.00)		
				Wetness (0.02)		
			Mauvais, occasionally ponded (3%)	Wetness (0.00)		
				Ponding (0.00)		
				Hard to pack (0.08)		
				Area reclaim difficulty (0.36)		
				Small stone content (0.76)		
Totals for Area of Interest					**6,065.9**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Poor	4,912.1	81.0%
Fair	67.7	1.1%
Null or Not Rated	1,085.5	17.9%
Totals for Area of Interest	**6,065.9**	**100.0%**

Rating Options—Clay Liner Material Source (TRAVIS POPHAM)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher