
Solberg Avenue and I 229

Project 10-019

Wetland Assessment

February 2010

Applicant:

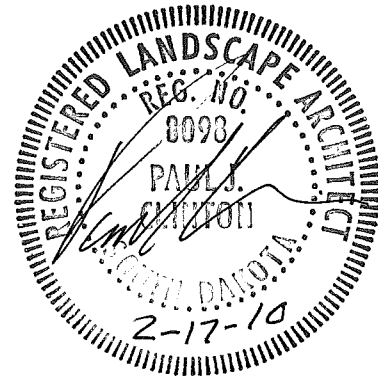
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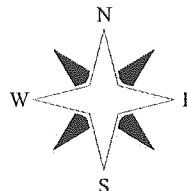
Submitted by:

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Introduction

This is a preliminary Wetland Assessment for the impact area for the future Solberg Avenue crossing at Interstate 229. The new road will extend the existing Solberg Avenue to the south and crosses over Interstate 229. The current weather conditions will not allow for field work. A wetland delineation will be needed to verify the jurisdictional wetlands. The project limits are outlined in Map 5.

Location

The Solberg Avenue project is located in southwest Sioux Falls, SD. The project area is in portions of the Southeast $\frac{1}{4}$ of Section 7, the Southwest $\frac{1}{4}$ of Section 8, the Northwest $\frac{1}{4}$ of Section 17 and the Northeast $\frac{1}{4}$ of Section 18, of Township 100 North, Range 50 West, Lincoln County, SD (Map 1: Vicinity Location). This site is located south of 57th Street and near the intersection of Interstates 29 and 229.

Wetlands Identified by Other Agencies

The National Wetland Inventory (NWI) map identifies one wetland within the study area. This wetland is a Palustrine Forested Seasonally Flooded (PFOC). This wetland is associated with the avoided wetlands from 'The Edges' mitigation project (Map 2: National Wetland Inventory).

The USGS Quad also identifies an unnamed tributary to the Big Sioux River.

There may be additional wetland that may have not been identified within the National Wetland Inventory.

Hydrology

The topography gently slopes from the north and south towards the intermittent stream that flows through the north central portion of the study area on the north side of Interstate 229. On the south side of Interstate 229 the topography slopes north towards the interstate. The property consists of one watershed that extends beyond the property. An intermittent stream is located within the study area and continues to flows east to the Big Sioux River (Map 3: USGS Quad, Tea, SD).

The Solberg Avenue and I -229 study area is in the Hydrologic Unit (HUC) is 10170203 (Big Sioux Watershed).

Soils

The soils within the Solberg Crossing project site are illustrated in the Lincoln County Soils Survey (Map 4). Within the study area there are two hydric soil types and three non-hydric soils with hydric inclusions (Appendix 1: Soils Report). The dominate soil on-site is Wentworth-Chancellor (WhA) which is a non-hydric soil with hydric inclusions of Tetonka.

Soils present at the Solberg Avenue Study Area are listed in Table 1: Soils On-Site, Map 4: Lincoln County Soils Survey and detailed descriptions of the soil in Appendix 1: Soils Report.



Table 1: Soils On-Site

Soil Classification	Soil Label	Slope	Description	Hydric Inclusions
Orthents	Bp	0-15%	Non-Hydric	Chancellor, Baltic
Chancellor – Tetonka	Ca	0-1%	Hydric	Worthing
Egan	EaB	3-6%	Non-Hydric	Chancellor
Wentworth-Chancellor	WhA	0-2%	Non-Hydric	Tetonka
Worthing	Ws	0-1%	Hydric	None

Conclusion

Within the proposed construction limits there are known and potential wetlands. Due to the weather it is not possible to do field work until spring.

The wetlands north of Interstate 229 consist of known wetlands and potential wetlands. The known wetlands are within ‘The Edges’ Property. Wetlands 3 and 4 are on the west side of the proposed Solberg Avenue. Wetland 3 is a jurisdictional wetland that was avoided by ‘The Edges’ project. Wetland 4 is the on-site mitigation site for ‘The Edges’ project. The Corps of Engineers is aware that this project will impact a portion of The Edges mitigation site. There is a potential wetland located in the west ditch of the existing Solberg Avenue is labeled as Wetland 1.

Wetland 2 is a potential wetland in the east ditch of Solberg Avenue. This linear wetland flows south to the intermittent stream. Wetland 5 is a potential wetland that is south of the intermittent stream and north of Interstate 229. This intermittent stream flows east to the Big Sioux River.

South of Interstate 229 at the intersection of the future Solberg Avenue and W. 69th Street there are four wetlands that have been determined to be non jurisdictional by the Corps of Engineers. Wetlands 8, 9 and 11 are associated with the West 69th Street project and the COE jurisdictional determination number NWO-2009-542-PIE. Wetland 10 is also a non jurisdictional wetland and is associated with the Sanford Research Park COE number NWO-2008-121.

Wetland 7 is located outside of the W. 69th Street right of way and is connected to Wetland 9. It is likely that Wetland 7 will also be non jurisdictional.

There is a potential wetland that is located in the south road ditch of Interstate 229. Wetland 6 is illustrated on Map 5 of having water present in the road ditch of Interstate 229. These wetlands will need to be field checked in the spring for their size and connectivity.

Within the project limits there are approximately 4.8 acres of wetlands. ‘The Edges’ property has approximately 0.7 acres of mitigated wetlands and 0.6 acres of existing wetlands are to the north. There are approximately 3.5 acres of potential wetlands that have not been determined jurisdictional wetlands by the Corps of Engineers.



Table 2: Existing Conditions

Wetland ID	Description	Status	Approximate Potential Acres
Wetland 1	Linear Wetland	Potential Jurisdictional	0.3
Wetland 2	Linear Wetland	Potential Jurisdictional	1.2
Wetland 3	'The Edges' Avoided	Jurisdictional	0.6
Wetland 4	'The Edges' Mitigation	Jurisdictional	0.7
Wetland 5	Depressional Wetland	Potential Jurisdictional	1.0
Wetland 6	Linear Wetland	Potential Jurisdictional	0.7
Wetland 7	Linear Wetland	Potential Non Jurisdictional	0.2
	Intermittent Stream	Jurisdictional	0.2
Wetland 8	69 th Street	Non Jurisdictional	0.0
Wetland 9	69 th Street	Non Jurisdictional	0.0
Wetland 10	Sanford Research Park	Non Jurisdictional	0.0
Wetland 11	69 th Street	Non-Jurisdictional	0.0
Potential Impact			4.8

If you have any questions please contact Karrie Johnson or Paul Clinton at 605-334-4882.

Maps:

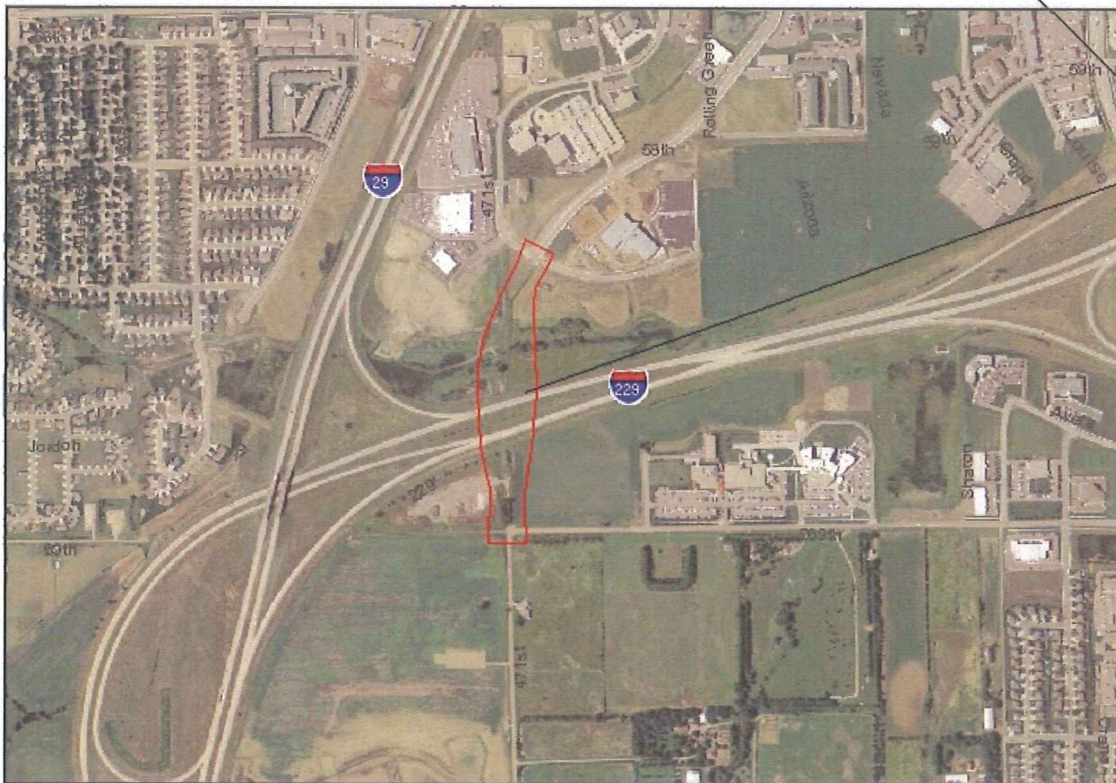
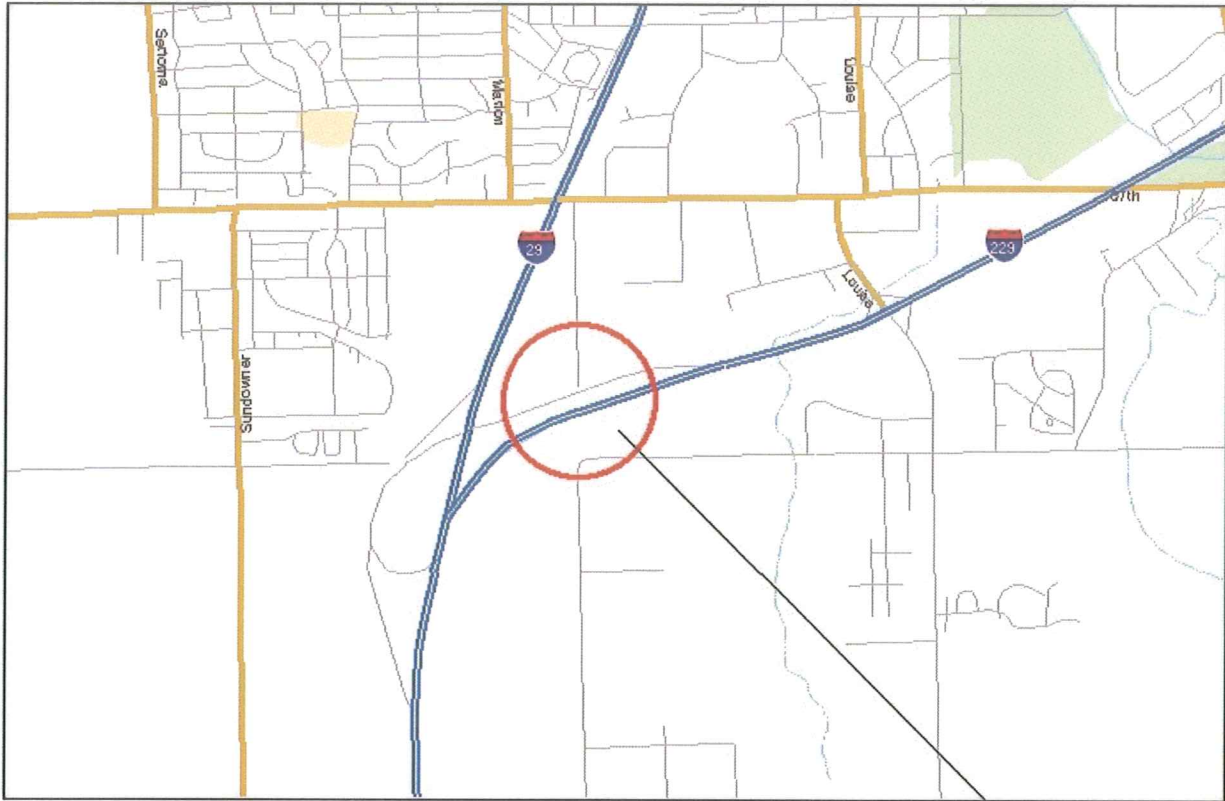
- Map 1: Vicinity Location
- Map 2: National Wetland Inventory, Tea
- Map 3: USGS Quad, Tea, SD
- Map 4: Lincoln County Soil Survey
- Map 5: Existing Conditions

Attachments:

- Appendix 1: Soils Report
- Appendix 2: The Edges Deed Restriction

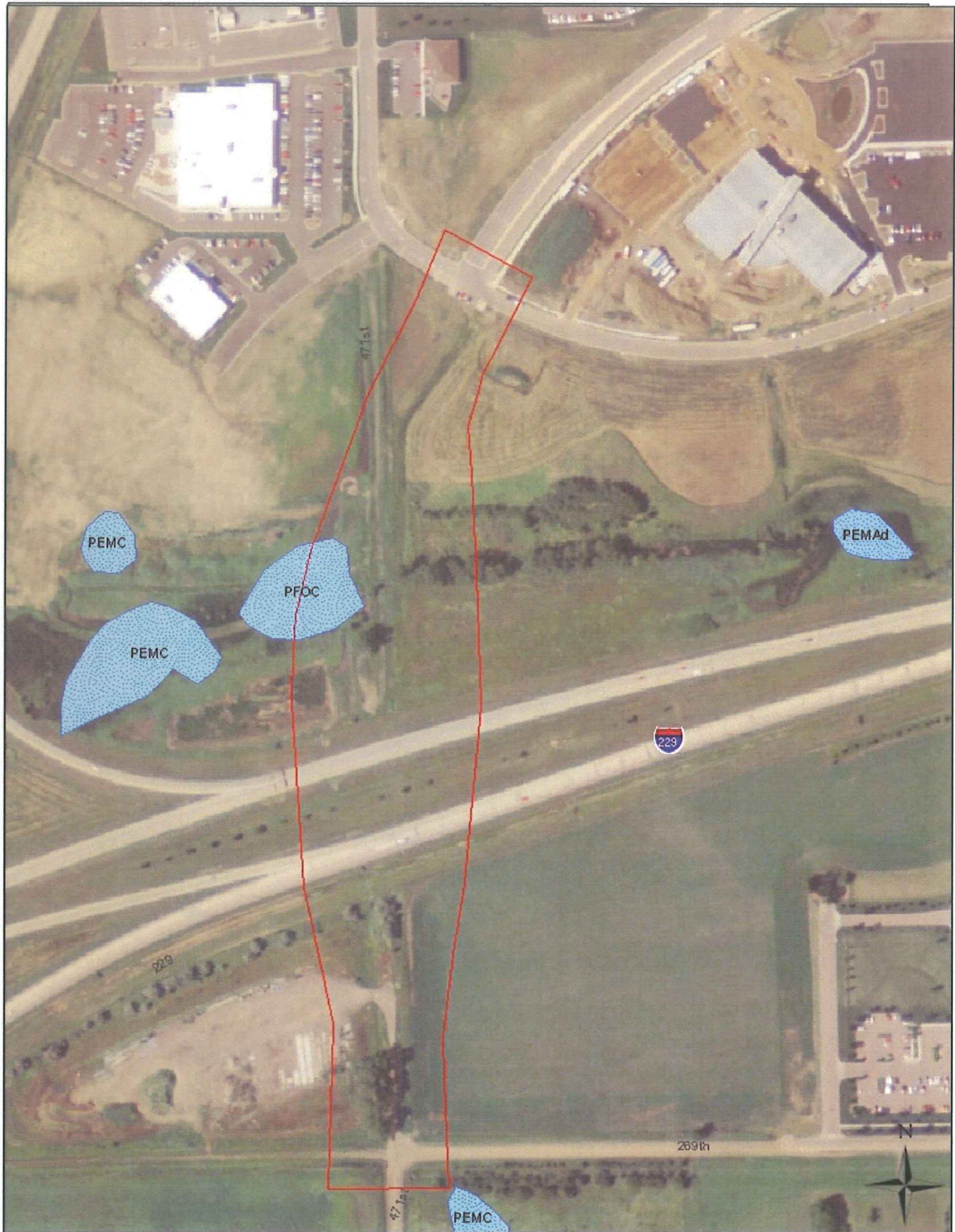


Prepared By: K. Johnson



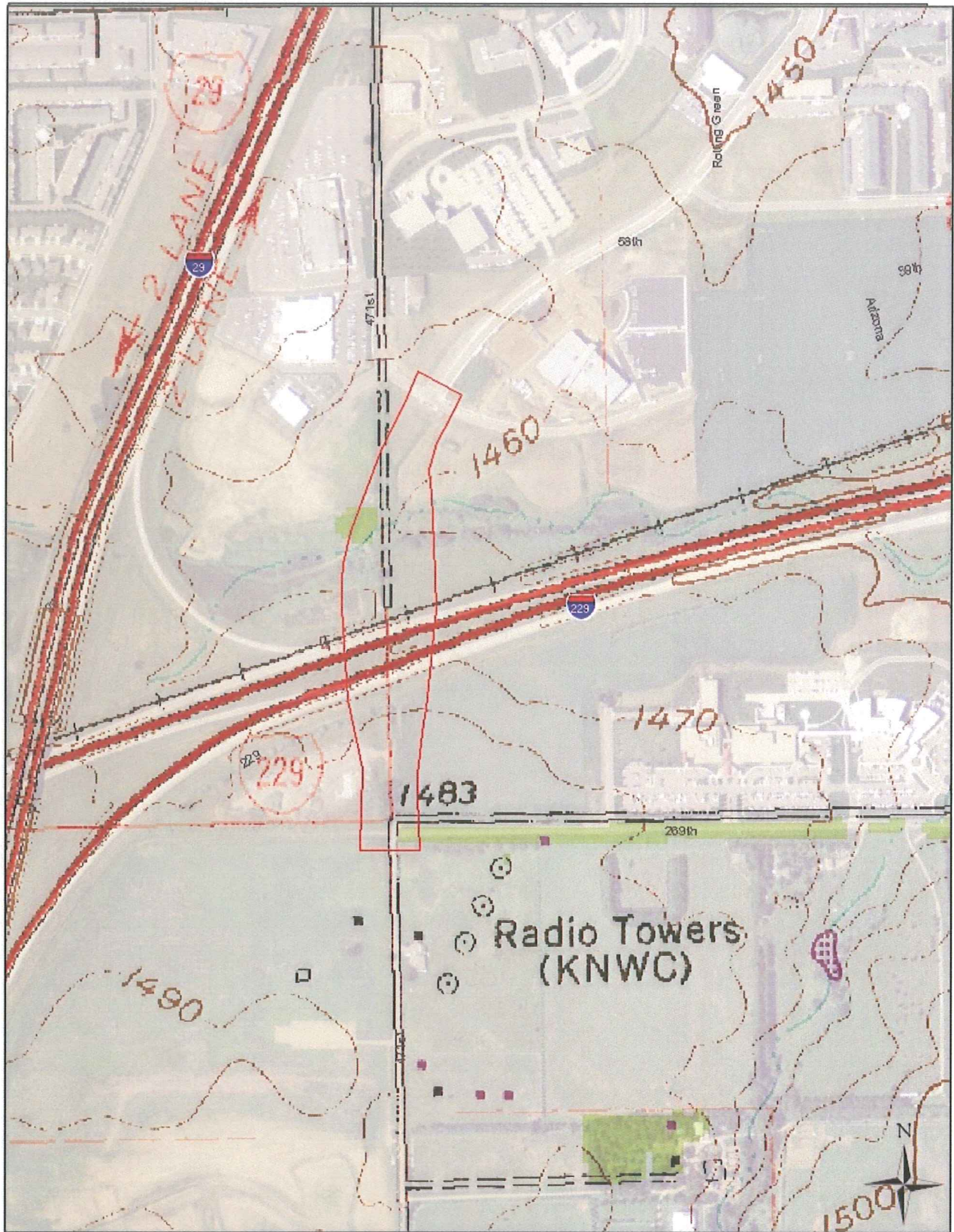
Site

Map 1: Vicinity Location



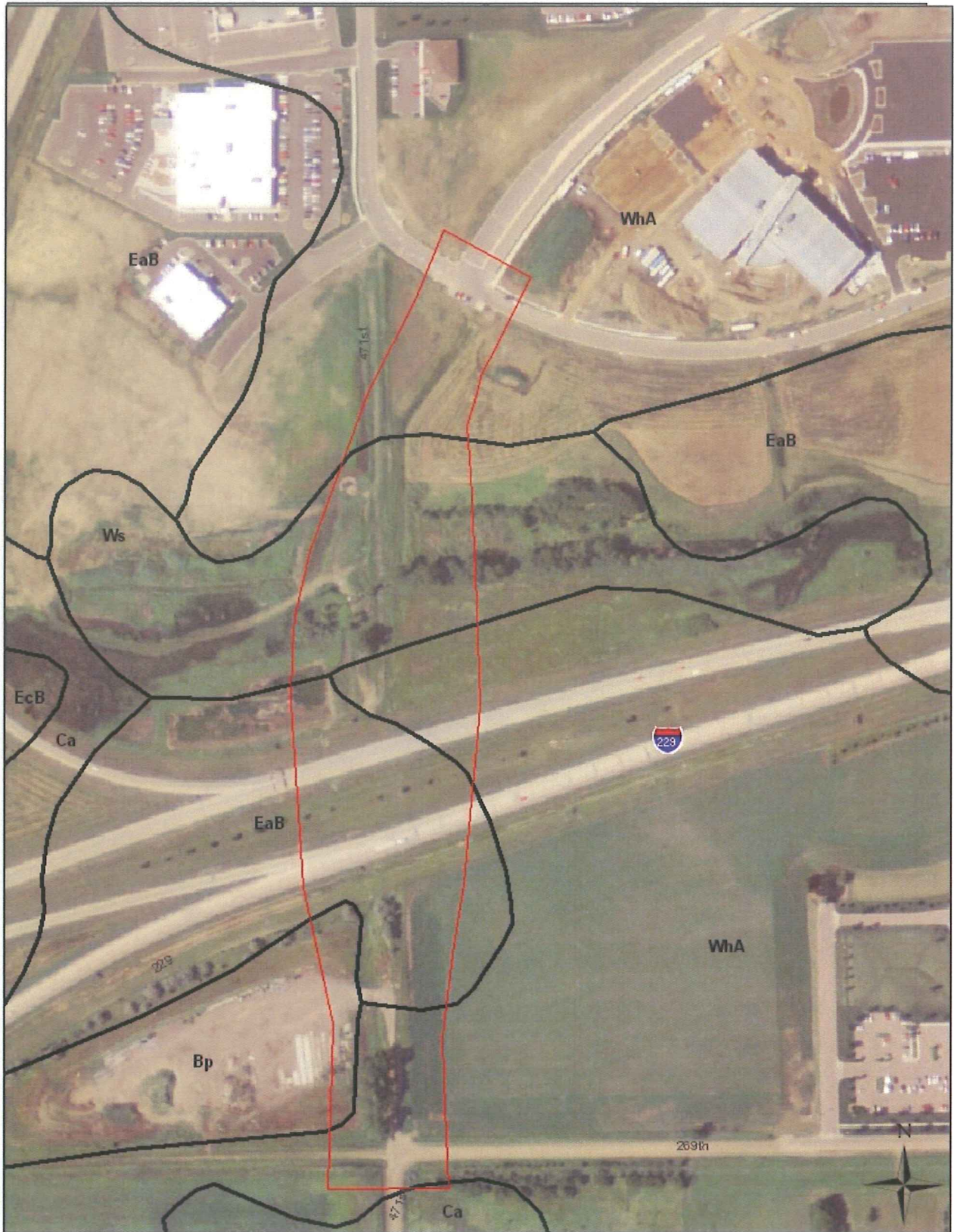
0 90 180 360 540 720 Feet

Map 2: National Wetland Inventory



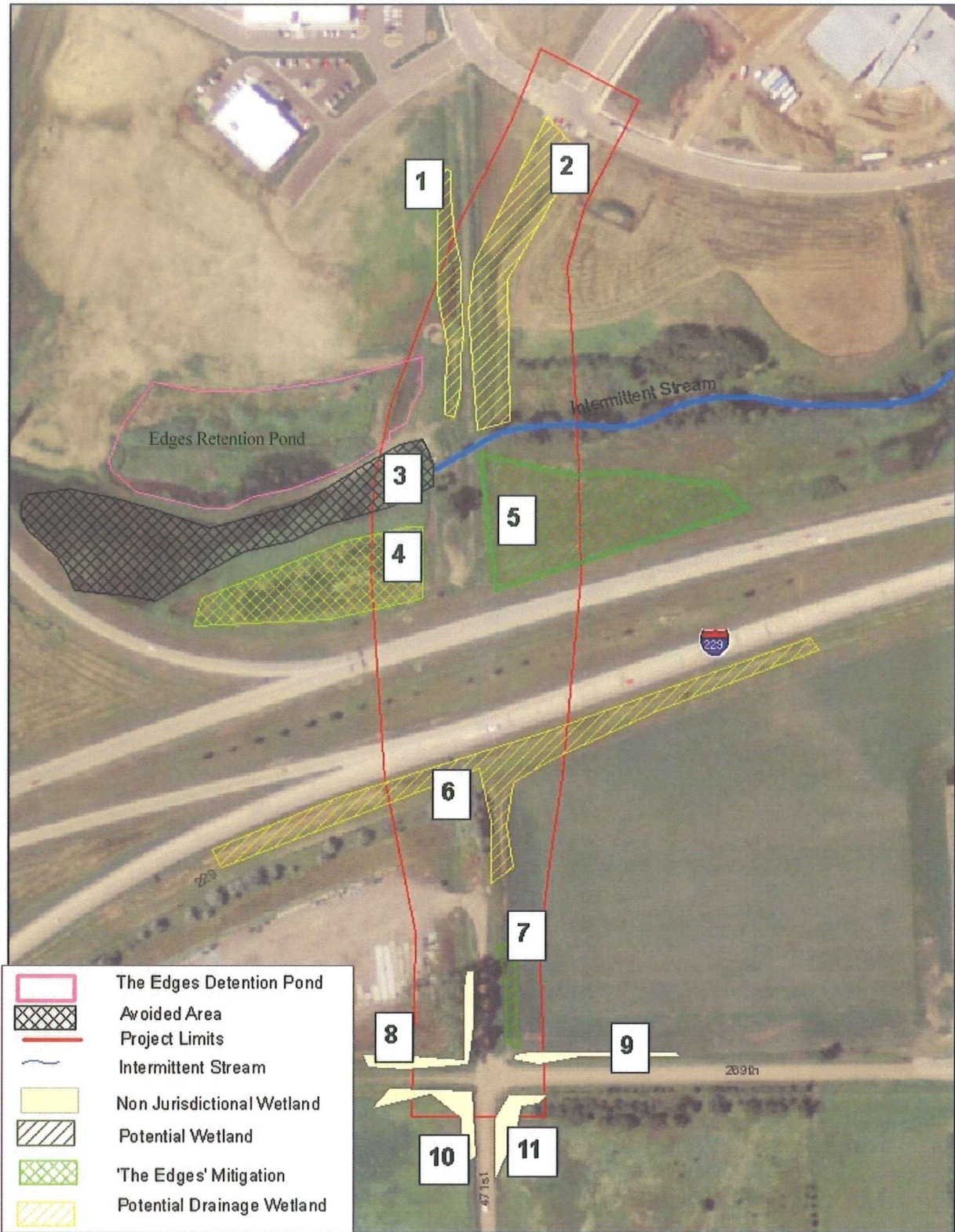
0 205 410 820 1,230 1,640 Feet

Map 3: USGS Quad, Tea, SD

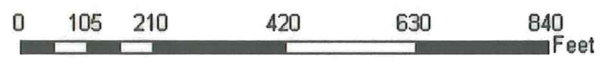


0 90 180 360 540 720 Feet

Map 4: Lincoln County Soils Survey



Map 5: Existing Conditions





Appendix 1: Soils Report



United States
Department of
Agriculture



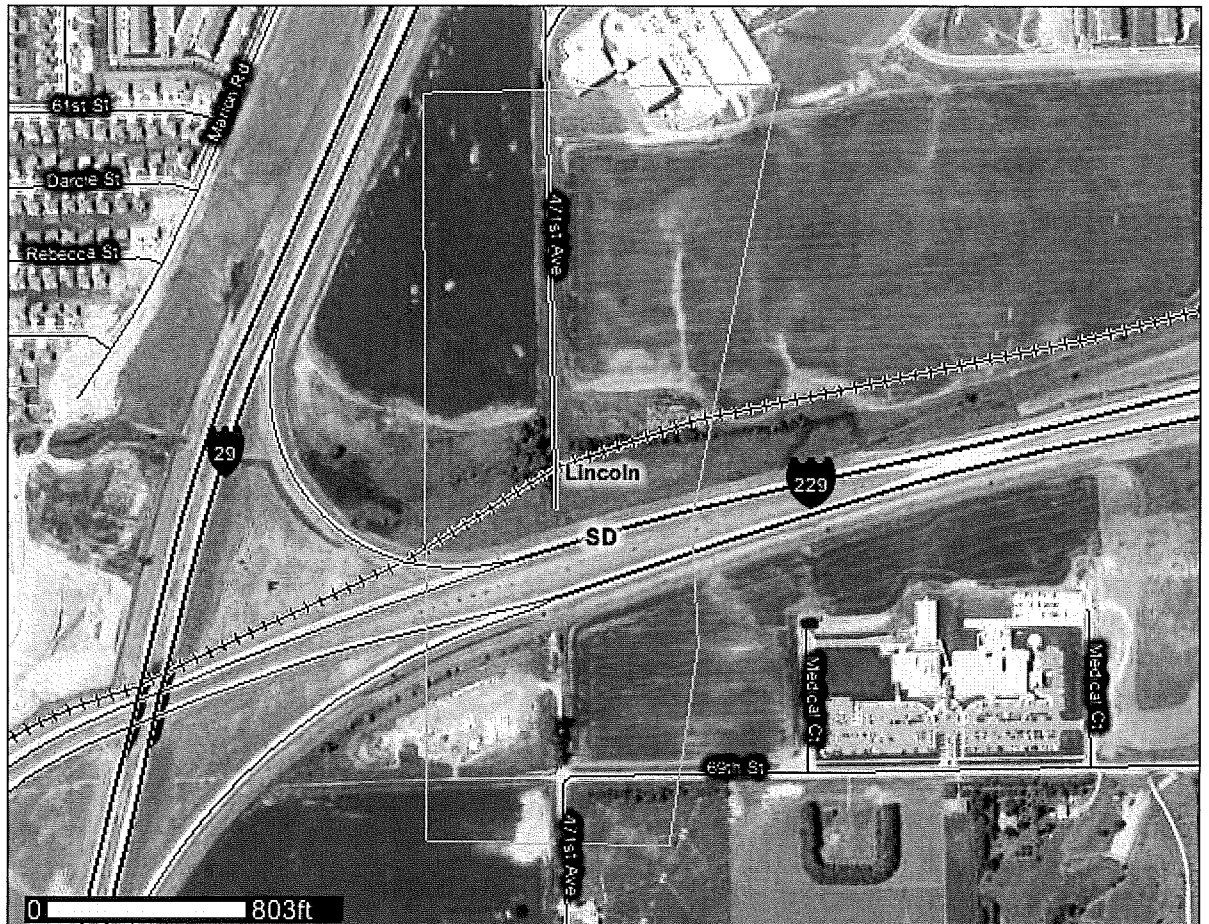
NRCS

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 Lincoln County, South Dakota

Solberg Avenue



February 2, 2010

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://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

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

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

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

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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

96° 47' 27"

96° 46' 53"

43° 29' 52"

43° 29' 52"



43° 29' 19"

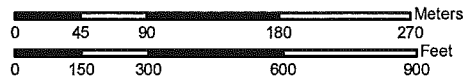
43° 29' 18"

96° 47' 28"

96° 46' 54"



Map Scale: 1:4,890 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

	Area of Interest (AOI)		Very Stony Spot
	Soils		Wet Spot
	Soil Map Units		Other
	Blowout	Special Line Features	
	Borrow Pit		Gully
	Clay Spot		Short Steep Slope
	Closed Depression		Other
	Gravel Pit	Political Features	
	Gravelly Spot		Cities
	Landfill	Water Features	
	Lava Flow		Oceans
	Marsh or swamp		Streams and Canals
	Mine or Quarry	Transportation	
	Miscellaneous Water		Rails
	Perennial Water		Interstate Highways
	Rock Outcrop		US Routes
	Saline Spot		Major Roads
	Sandy Spot		Local Roads
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		
	Spoil Area		
	Stony Spot		

MAP INFORMATION

Map Scale: 1:4,890 if printed on A size (8.5" x 11") sheet.

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

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

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 14N NAD83

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

Soil Survey Area: Lincoln County, South Dakota
 Survey Area Data: Version 12, Oct 15, 2008

Date(s) aerial images were photographed: 7/21/2004

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

Lincoln County, South Dakota (SD083)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bp	Orthents, loamy	4.3	5.5%
Ca	Chancellor-Tetonka silty clay loams	3.0	3.8%
EaB	Egan silty clay loam, 3 to 6 percent slopes	17.1	21.7%
WhA	Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes	44.4	56.4%
Ws	Worthing silty clay	9.9	12.6%
Totals for Area of Interest		78.7	100.0%

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

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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.

Lincoln County, South Dakota

Bp—Orthents, loamy

Map Unit Setting

Elevation: 1,150 to 1,890 feet
Mean annual precipitation: 23 to 26 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Orthents, loamy, and similar soils: 90 percent
Minor components: 10 percent

Description of Orthents, Loamy

Setting

Landform: Moraines
Landform position (two-dimensional): Toeslope, summit, footslope, backslope
Down-slope shape: Concave, convex, linear
Across-slope shape: Concave, linear
Parent material: Loess and/or outwash

Properties and qualities

Slope: 0 to 15 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: 20 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: High (about 10.4 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Other vegetative classification: Not suited (G102BY000SD)

Typical profile

0 to 6 inches: Clay loam
6 to 80 inches: Clay loam

Minor Components

Wentworth

Percent of map unit: 3 percent
Landform: Moraines
Landform position (two-dimensional): Summit, backslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: LOAMY (R102BY010SD)

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Other vegetative classification: Loam (G102BY100SD), SILTY (102BY010SD_2),
Loam (G102BY100SD)

Chancellor

Percent of map unit: 2 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: LOAMY OVERFLOW (R102BY020SD)
Other vegetative classification: Subirrigated (G102BY700SD)

Egan

Percent of map unit: 2 percent
Landform: Till plains
Landform position (two-dimensional): Summit, backslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: LOAMY (R102BY010SD)
Other vegetative classification: SILTY (102BY010SD_2), Loam (G102BY100SD)

Baltic, ponded

Percent of map unit: 2 percent
Landform: Potholes
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Not suited (G102BY000SD)

Wakonda

Percent of map unit: 1 percent
Landform: Rises on swales on till plains
Landform position (two-dimensional): Footslope
Down-slope shape: Concave
Across-slope shape: Linear, concave
Ecological site: LIMY SUBIRRIGATED (R102BY006SD)
Other vegetative classification: Subirrigated (G102BY700SD)

Ca—Chancellor-Tetonka silty clay loams

Map Unit Setting

Elevation: 1,150 to 1,890 feet
Mean annual precipitation: 23 to 26 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Chancellor and similar soils: 65 percent
Tetonka and similar soils: 25 percent
Minor components: 10 percent

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Description of Chancellor

Setting

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

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: LOAMY OVERFLOW (R102BY020SD)
Other vegetative classification: Subirrigated (G102BY700SD)

Typical profile

0 to 18 inches: Silty clay loam
18 to 36 inches: Silty clay
36 to 60 inches: Silty clay loam

Description of Tetonka

Setting

Landform: Closed depressions on till plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): 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 slightly saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0

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Available water capacity: High (about 10.0 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Ecological site: WET MEADOW (R102BY004SD)

Other vegetative classification: Wet (G102BY900SD)

Typical profile

0 to 19 inches: Silty clay loam

19 to 36 inches: Silty clay

36 to 60 inches: Silty clay

Minor Components

Viborg

Percent of map unit: 4 percent

Landform: Drainageways

Landform position (two-dimensional): Footslope

Down-slope shape: Concave

Across-slope shape: Linear

Ecological site: LOAMY OVERFLOW (R102BY020SD)

Other vegetative classification: Overflow (G102BY500SD)

Wakonda

Percent of map unit: 4 percent

Landform: Rises on swales on till plains

Landform position (two-dimensional): Footslope

Down-slope shape: Concave

Across-slope shape: Linear, concave

Ecological site: LIMY SUBIRRIGATED (R102BY006SD)

Other vegetative classification: Subirrigated (G102BY700SD)

Worthing

Percent of map unit: 2 percent

Landform: Potholes on till plains

Landform position (two-dimensional): Toeslope

Down-slope shape: Concave

Across-slope shape: Concave

Ecological site: SHALLOW MARSH (R102BY001SD)

Other vegetative classification: Not suited (G102BY000SD)

EaB—Egan silty clay loam, 3 to 6 percent slopes

Map Unit Setting

Elevation: 1,150 to 1,890 feet

Mean annual precipitation: 23 to 26 inches

Mean annual air temperature: 43 to 48 degrees F

Frost-free period: 135 to 160 days

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Map Unit Composition

Egan and similar soils: 80 percent
Minor components: 20 percent

Description of Egan

Setting

Landform: Till plains
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty drift over loamy till

Properties and qualities

Slope: 3 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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water capacity: High (about 11.5 inches)

Interpretive groups

Land capability (nonirrigated): 2e
Ecological site: LOAMY (R102BY010SD)
Other vegetative classification: Loam (G102BY100SD), SILTY (102BY010SD_2)

Typical profile

0 to 8 inches: Silty clay loam
8 to 25 inches: Silty clay loam
25 to 30 inches: Silty clay loam
30 to 38 inches: Clay loam
38 to 60 inches: Clay loam

Minor Components

Shindler

Percent of map unit: 6 percent
Landform: Till plains
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: LOAMY (R102BY010SD)
Other vegetative classification: Limy Upland (G102BY400SD)

Viborg

Percent of map unit: 6 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope
Down-slope shape: Concave

Custom Soil Resource Report

Across-slope shape: Linear
Ecological site: LOAMY (R102BY010SD)
Other vegetative classification: Loam (G102BY100SD)

Wentworth

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: LOAMY (R102BY010SD)
Other vegetative classification: SILTY (102BY010SD_2), Loam (G102BY100SD),
Loam (G102BY100SD)

Chancellor

Percent of map unit: 1 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: LOAMY OVERFLOW (R102BY020SD)
Other vegetative classification: Subirrigated (G102BY700SD)

Ethan

Percent of map unit: 1 percent
Landform: Till plains
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: THIN UPLAND (R102BY012SD)
Other vegetative classification: Limy Upland (G102BY400SD)

Orthents, gravelly

Percent of map unit: 1 percent
Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope, footslope
Down-slope shape: Convex, linear, concave
Across-slope shape: Linear, concave
Other vegetative classification: Not suited (G102BY000SD)

WhA—Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes

Map Unit Setting

Elevation: 1,150 to 1,890 feet
Mean annual precipitation: 23 to 26 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Wentworth and similar soils: 55 percent
Chancellor and similar soils: 25 percent

Custom Soil Resource Report

Minor components: 20 percent

Description of Wentworth

Setting

Landform: Till plains

Landform position (two-dimensional): Backslope, summit

Down-slope shape: Linear, convex

Across-slope shape: Linear

Parent material: Silty drift over loamy till

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

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

Depth to water table: About 36 to 60 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Gypsum, maximum content: 1 percent

Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)

Sodium adsorption ratio, maximum: 1.0

Available water capacity: High (about 11.7 inches)

Interpretive groups

Land capability (nonirrigated): 1

Ecological site: LOAMY (R102BY010SD)

Other vegetative classification: Loam (G102BY100SD)

Typical profile

0 to 7 inches: Silty clay loam

7 to 25 inches: Silty clay loam

25 to 60 inches: Silty clay loam

Description of Chancellor

Setting

Landform: Drainageways

Landform position (two-dimensional): Toeslope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Clayey alluvium

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

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

Depth to water table: About 0 to 24 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Gypsum, maximum content: 5 percent

Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)

Custom Soil Resource Report

Sodium adsorption ratio, maximum: 2.0
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: LOAMY OVERFLOW (R102BY020SD)
Other vegetative classification: Subirrigated (G102BY700SD)

Typical profile

0 to 18 inches: Silty clay loam
18 to 36 inches: Silty clay
36 to 60 inches: Silty clay loam

Minor Components

Egan

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: LOAMY (R102BY010SD)
Other vegetative classification: Loam (G102BY100SD), SILTY (102BY010SD_2)

Tetonka

Percent of map unit: 5 percent
Landform: Closed depressions on till plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: WET MEADOW (R102BY004SD)
Other vegetative classification: Wet (G102BY900SD)

Viborg

Percent of map unit: 5 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: LOAMY OVERFLOW (R102BY020SD)
Other vegetative classification: Overflow (G102BY500SD)

Wakonda

Percent of map unit: 5 percent
Landform: Rises on swales on till plains
Landform position (two-dimensional): Footslope
Down-slope shape: Concave
Across-slope shape: Linear, concave
Ecological site: LIMY SUBIRRIGATED (R102BY006SD)
Other vegetative classification: Subirrigated (G102BY700SD)

Ws—Worthing silty clay

Map Unit Setting

Elevation: 1,150 to 1,890 feet
Mean annual precipitation: 23 to 26 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

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

Description of Worthing

Setting

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

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: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water capacity: Moderate (about 8.9 inches)

Interpretive groups

Land capability (nonirrigated): 5w
Ecological site: SHALLOW MARSH (R102BY001SD)
Other vegetative classification: Not suited (G102BY000SD)

Typical profile

0 to 10 inches: Silty clay
10 to 26 inches: Silty clay
26 to 60 inches: Silty clay

Custom Soil Resource Report

Minor Components

Wakonda

Percent of map unit: 10 percent

Landform: Rims on potholes on till plains

Landform position (two-dimensional): Footslope

Down-slope shape: Concave

Across-slope shape: Linear, concave

Ecological site: LIMY SUBIRRIGATED (R102BY006SD)

Other vegetative classification: Subirrigated (G102BY700SD)



Appendix 2: The Edges Deed Restriction

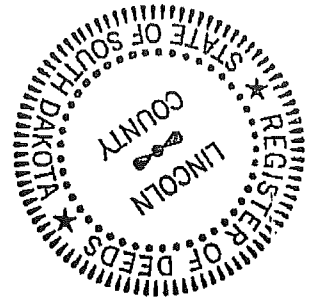
Prepared by:
John F. Archer
Hagen, Wilka & Archer, P.C.
600 S. Main Avenue, Suite 102
P.O. Box 964
Sioux Falls, SD 57101-0964
(605)334-0005

INSTRUMENT NO. 301843
BOOK: 18 MISCELLANEOUS
PAGE: 767

2008/08/27 09:49:31 AM

KATHLEEN HILL, REGISTER OF DEEDS
LINCOLN COUNTY, SOUTH DAKOTA

Recording Fee: \$ 16.00
Return To: HAGEN WILKA ARCHER



Deed Restriction

COVENANT OF DEDICATION

The Edges, LLC now stipulates to the following statements of fact, and further agrees to restrict the use and title of the realty described in Attachment 1 to this document (hereinafter referred to as the "Land") in accordance with the terms and conditions set forth herein.

STIPULATIONS OF FACT

1. That The Edges, LLC is the applicant for Department of the Army permit number 200530429 to place fill material in the wetlands located in Lot 5 in Block 1 of The Edges Addition to the City of Sioux Falls, Lincoln County, SD; and that the U.S. Army Corps of Engineers has regulatory jurisdiction over the discharge of dredged or fill material into said wetlands pursuant to Section 404 of the Clean Water (33 USC 1344).
2. That The Edges, LLC is the owner in fee of the real estate described in Attachment 1.
3. That The Edges, LLC and the Omaha District of the U.S. Army Corps of Engineers have reached an agreement whereby The Edges, LLC will be permitted to discharge fill material in wetlands in accordance with the terms and conditions of Department of the Army permit number 200530429; and that in consideration for said discharge of fill material in the wetland, The Edges, LLC will provide mitigation for the adverse environmental effects resulting from the placement of fill material in the wetland by dedicating the realty described in Attachment 1 for perpetual use as a conservancy area in accordance with the terms and conditions of this document and the above-mentioned permit area and with the option that the designated area shown on Attachment 1 along Solberg Avenue may be impacted by future Solberg Avenue street improvement project and re-mitigated.
4. That the above-mentioned dedication shall consist of the execution of this document by all parties necessary to restrict the use and title of the land; and that this document shall be recorded in the Office of the Register of Deeds for Lincoln County, SD.
5. A copy of this document, as recorded in the Office of the County Register of Deeds for Lincoln County, SD, will be submitted to the Regulatory Office of the U.S. Army Corps of Engineers for their file.

6. That the terms and conditions of this Covenant of Dedication shall, as of the date of execution of this document, bind The Edges, LLC to the extent of its legal and/or equitable interest in the land; and that this Covenant shall run with the land and be binding on The Edges, LLC and its successors and assigns forever.

7. That the terms and conditions of this Covenant shall be both implicitly and explicitly included in any transfer, conveyance, or encumbrance of the Land or any part thereof, and that any instrument of transfer, conveyance, or encumbrance affecting all or any part of the Land shall set forth the terms and conditions of this document either by reference to this document or set forth in full text.

DEED AND USE RESTRICTIONS

The Edges, LLC hereby warrants that it is the owner in fee of the realty described in Attachment 1; and that the Land is hereby dedicated in perpetuity for use as a conservancy area.

The Edges, LLC hereby agrees to restrict the use and title of the Land as follows:

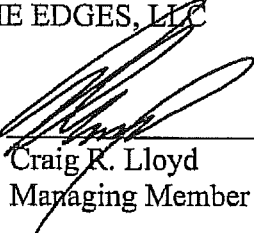
1. There shall be no construction or placement of structures or mobile homes, fences, signs, billboards or other advertising material, or other structures, whether temporary or permanent, on the land.
2. There shall be no filling, draining, excavating, dredging, mining, drilling or removal of topsoil, loam, peat, sand, gravel, rock, minerals or other materials.
3. There shall be no building of roads or paths for vehicular or pedestrian travel or any change in the topography of the land.
4. There shall be no removal, destruction, or cutting of native trees or plants; spraying with biocides, insecticides, or pesticides; grazing of animals, farming, tilling of soil, or any other agricultural activity. Management activities including controlled burning in accordance with the mitigation plan are acceptable upon approval from the Corps.
5. There shall be no operation of all-terrain vehicles or any other type of motorized vehicle on the land except as necessary for maintenance/management activities.
6. This Covenant of Dedication may be changed, modified or revoked only upon written approval of the District Engineer of the Omaha District of the U.S. Army Corps of Engineers. To be effective, such approval must be witnessed, authenticated, and recorded pursuant to the law of the State of South Dakota.

This Covenant needs to be reviewed by the Corps of Engineers prior to signature to assure compliance with permit conditions.

7. This Covenant is made in perpetuity such that the present owner and its heirs and assigns forever shall be bound by the terms and conditions set forth herein.

Dated this 10 day of July, 2008, at Sioux Falls, South Dakota.

THE EDGES, LLC

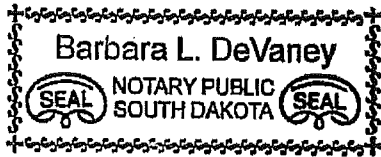
By 
Craig R. Lloyd
Its Managing Member

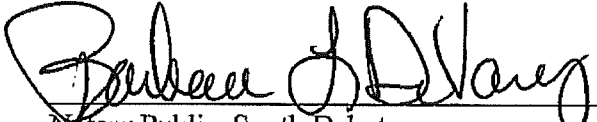
STATE OF SOUTH DAKOTA)
 : SS
COUNTY OF MINNEHAHA)

On the 10 of July, 2008, before me, the undersigned officer, personally appeared Craig R. Lloyd, who acknowledged himself to be the Managing Member of The Edges, LLC, a limited liability company, and that he, as such Managing Member being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the limited liability company by himself as Managing Member.

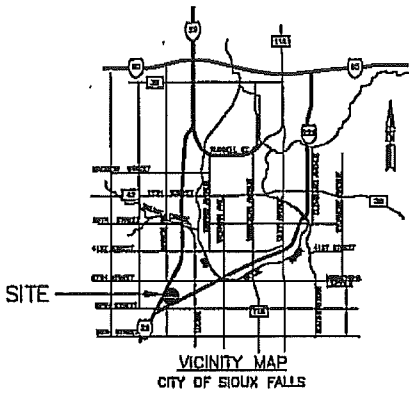
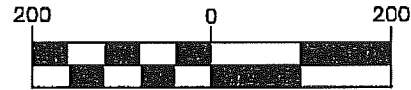
IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

(SEAL)




Notary Public, South Dakota
My commission expires: 5-2-09

LOT 5 IN BLOCK 1
 THE EDGES ADDITION
 TO THE CITY OF SIOUX FALLS,
 LINCOLN COUNTY, SOUTH DAKOTA



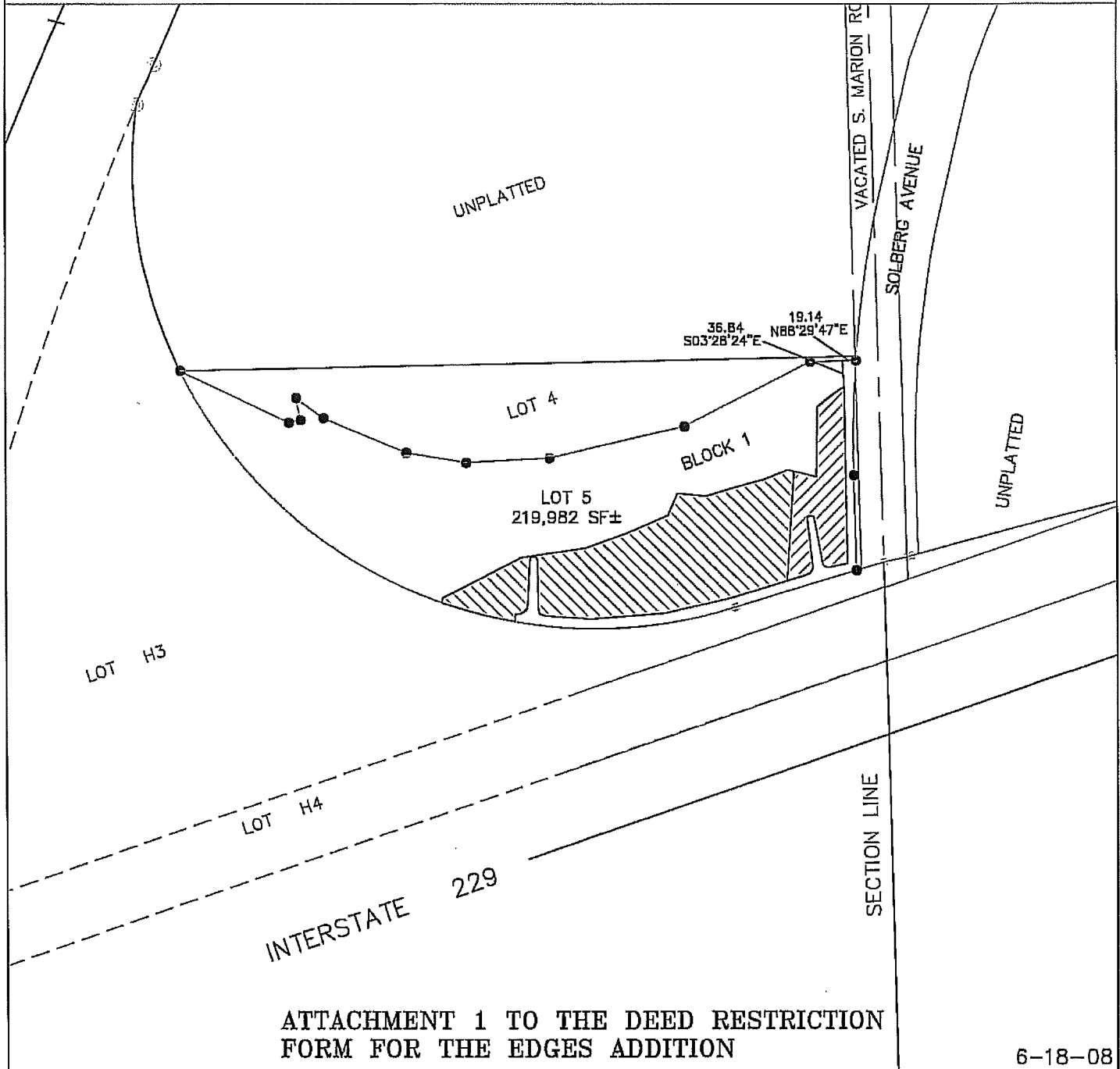
LEGEND



PERMANENT DEED RESTRICTION



AREA PLACED IN DEED RESTRICTION BUT MAY BE IMPACTED BY THE FUTURE SOLBERG AVENUE STREET IMPROVEMENT PROJECT AND RE-MITIGATED.



6-18-08