Attachment B

STORMWATER POLLUTION PREVENTION PLAN

South Deuel Wind

Deuel County, South Dakota

JULY 2025

PREPARED FOR:

Invenergy

Chicago, IL

PREPARED BY:

Westwood

Stormwater Pollution Prevention Plan (SWPPP) Narrative

South Deuel Wind

Deuel County, South Dakota
NPDES Permit Identification #: SDR10XXXX

Prepared For:

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Project Number: R0069745.00
Date: July 2025

Westwood

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Attachments

1.0 Introduction and Purpose

This SWPPP is prepared in accordance with the National Pollutant Discharge Elimination System (NPDES) regulations as established by the Clean Water Act and guided by the State of South Dakota. The South Dakota Department of Agriculture and Natural Resource's General Permit for Stormwater Discharges Associated with Construction Activity SDR100000 (Expires: October 21, 2028) provides the framework of requirements for compliance to discharge stormwater from a construction site.

This SWPPP is for implementation by the Owner, as listed in Section 5.1 of this SWPPP, at the South Deuel Wind site, with the project location as defined in Section 4.0 of this SWPPP. This report shall be on the site at all times during construction.

The following are outlined in this site specific SWPPP:

- Control measures for stormwater pollution prevention during each phase of construction,
- Control measures for stormwater pollution prevention after construction,
- Sources of stormwater and non-stormwater pollution, and
- Inspection and maintenance procedures.

2.0 SWPPP Certification Statement

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Bryan Schueler, Senior Executive VP

Name & Title

Signature

Date

3.0 SWPPP Amendments

This plan and the attachments must be amended to include additional requirements, or modified requirements, which take place during construction if one or more of the following occur.

1. There is a change in design, construction, operation, maintenance, weather, or seasonal conditions that significantly impacts the discharge of pollutants from the site to surface or groundwater.
2. Inspections or investigations by the site owner, Environmental Protection Agency, or South Dakota Department of Agriculture and Natural Resources officials indicate this plan is not effective in eliminating or significantly minimizing the discharge of pollutants.
3. This SWPPP is not achieving the general objectives of minimizing pollutants in stormwater discharges or if this plan is not consistent with the SDR100000 General Permit for Stormwater Discharges Associated with Construction Activities.
4. If the South Dakota Department of Agriculture and Natural Resources notifies the Owner (i.e. permittees) that additional requirements are needed, requirements are not being met for TMDL or other water quality standards, or that the SWPPP did not incorporate the necessary requirements.

3.1 SWPPP Amendment Log

The following table should be completed as necessary during construction to document changes and amendments to this document. Place the Amendment Number next to all application changes, redlines and information in the document to reference back to the changes summarized below. If an additional sheet is necessary, attach the additional sheet to the SWPPP.

Table 1: Amendment Log

Amend #	Date	Reason, location and brief description of modification, or amendment	Requested by:	Prepared by:

3.2 SWPPP Amendment Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Amendment #: _____

_____	_____	_____
Signature	Title	Date
_____	_____	_____
Printed Name	Contact Number	Company

Amendment #: _____

_____	_____	_____
Signature	Title	Date
_____	_____	_____
Printed Name	Contact Number	Company

Amendment #: _____

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Printed Name	Contact Number	Company

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Signature	Title	Date
Printed Name	Contact Number	Company

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Signature	Title	Date
Printed Name	Contact Number	Company

Amendment #: _____

Signature	Title	Date
Printed Name	Contact Number	Company

Amendment #: _____

Signature	Title	Date
Printed Name	Contact Number	Company

4.0 Site Information and Description

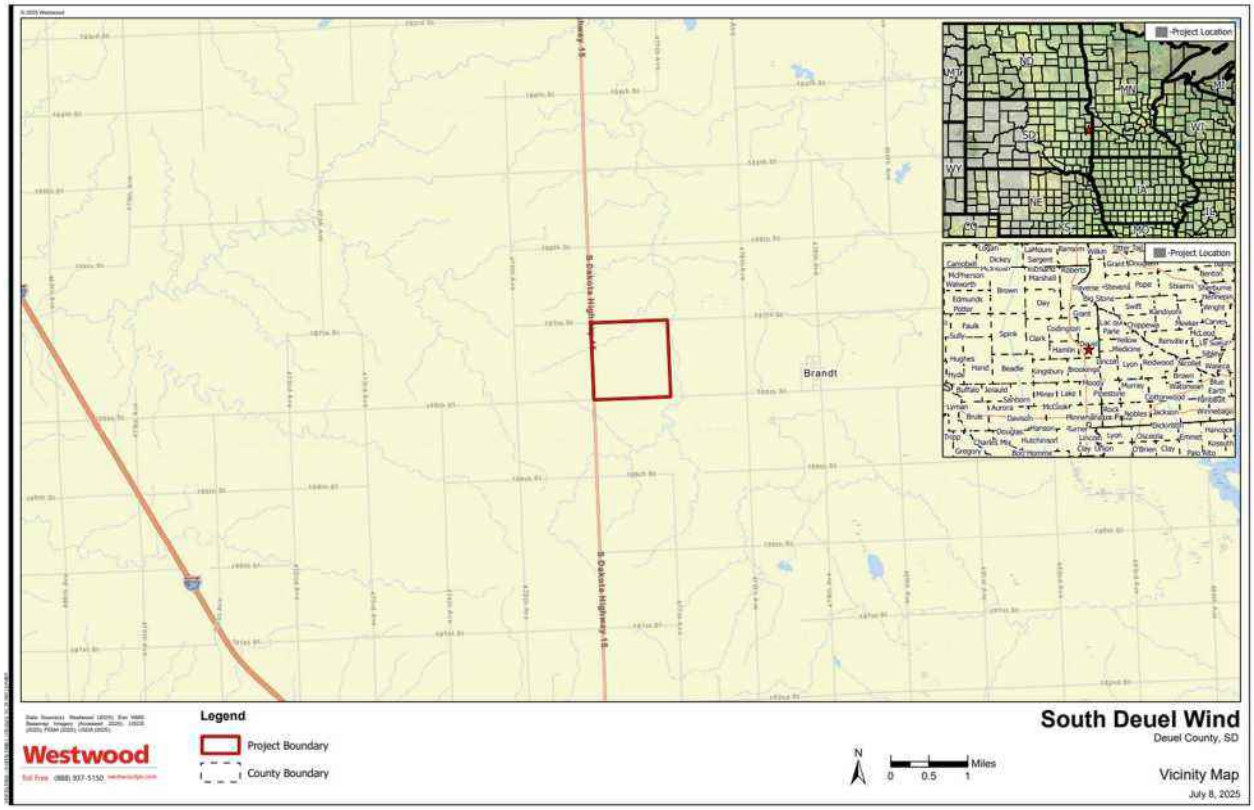
4.1 Site Location and Vicinity Map

The South Deuel Wind site is located in the county of Deuel, the townships of Brandt, south of the city of Clear Lake. The nearest intersection is 188th Street and SD Highway 15. The site is bordered upon the north by 187th Street, upon the south by 188th Street, the west by SD Highway 15 and the east by agricultural fields.

Table 2: Project Location

Section #	Township	Range
23	114 N	49 W
Latitude and Longitude Points (Decimal) #		
Latitude	44.664812	
Longitude	-96.676370	

Vicinity Map:



4.2 Existing Conditions

The slope and terrain of the site generally consists of flatter agricultural fields. The site currently has stormwater runoff flowing via unnamed creeks to the northeast. The site area discharges to an unnamed creek located to the northeast of the site.

4.2.1 Non-vegetative Cover

Prior to construction, there is no non-vegetative cover in the site area.

4.2.2 Vegetative Cover

Prior to construction, the vegetative cover on-site primarily consists of soybean and corn agricultural fields. Secondary cover includes grass / pastureland.

4.2.3 Land Use

Prior to construction the site area was primarily used for / as agricultural land. Secondary uses include developed / open space. A Phase I Environmental assessment was not conducted at the time of draft SWPPP completion.

4.3 Soil Names and Types

The soil types on-site primarily consist of loams and silty clay loams. The primary Hydrologic Soil Group (HSG) represented is C with secondary being B and D. Due to the large number of soils on site, only soils that consist of 2% or greater of the site area are included in the table below. Comprehensive soil maps are provided in Appendix C.

4.3.1 Soil Erosivity

Table 3: Soil K Factors and Erosivity Hazards

Soil Name / Type	Hydrologic Soil Group	K Factor	Erosivity Hazard				Reason(s) for Erosivity Rating
			Slight	Moderate	Severe	Very Severe	
Barnes-Buse loams, coteau, 2 to 6 percent slopes	C	0.26	X				Lack of slope
Barnes-Buse loams, 15 to 25 percent slopes	C	0.24		X			Surface kw times slope times R index (0.66)
Barnes-Buse-Svea loams, 2 to 15 percent slopes	C	0.24		X			Surface kw times slope times R index (0.53)
Hamerly-Badger complex, 0 to 2 percent slopes	C/D	0.28	X				Lack of slope
Kranzburg-Brookings silty clay loams, 0 to 2 percent slopes	C	0.30	X				Lack of slope
Kranzburg-Brookings silty clay loams, 1 to 6 percent slopes	C	0.30	X				Lack of slope
Lamoure-Rauville silty clay loams, channeled	B/D	0.20	X				Lack of slope
Vienna-Brookings complex, 0 to 2 percent slopes	C	0.33	X				Lack of slope
Vienna-Brookings complex, 1 to 6 percent slopes	C	0.33		X			Surface kw times slope times R index (0.06)
Vienna-Buse complex, 6 to 9 percent slopes	C	0.28		X			Surface kw times slope times R index (0.37)

Table 4: Soil Particle Size

Soil Type	% Sand	% Clay	% Silt	% Site Area
Barnes-Buse loams, coteau, 2 to 6 percent slopes	34.0	42.0	24.0	2.8
Barnes-Buse loams, 15 to 25 percent slopes	34.0	42.0	24.0	4.9
Barnes-Buse-Svea loams, 2 to 15 percent slopes	34.0	42.0	24.0	3.0
Hamerly-Badger complex, 0 to 2 percent slopes	34.0	42.0	24.0	4.7
Kranzburg-Brookings silty clay loams, 0 to 2 percent slopes	7.0	64.0	29.0	15.4
Kranzburg-Brookings silty clay loams, 1 to 6 percent slopes	7.0	64.0	29.0	17.8
Lamoure-Rauville silty clay loams, channeled	6.7	62.8	30.5	5.8
Vienna-Brookings complex, 0 to 2 percent slopes	7.0	68.0	25.0	4.0
Vienna-Brookings complex, 1 to 6 percent slopes	7.0	68.0	25.0	35.5
Vienna-Buse complex, 6 to 9 percent slopes	21.3	54.7	24.0	2.7

5.0 Project Information

5.1 Owner and Operator Information

Table 5: Owner and Operator Contact Information

Owner Information	Operator Information
Deuel Harvest Wind Energy South LLC	Rachel Contracting
David Newsome	Matt Peterson
One South Wacker Drive, Suite 1500, Chicago, IL 60606	4180 Napier Court NE, Saint Michael, MN 55376
312-582-1214, dnewsome@invenergy.com	608-844-7732, mpeterson@rachelcontracting.com

5.1.1 Owner Responsibilities

The owner responsibilities include:

- Developing a SWPPP prior to submitting the Notice of Intent (NOI);
- Submitting a complete and accurate NOI;
- Complying with all terms and conditions of the General Permit for Stormwater Discharges Associated with Construction Activities;
- Keeping the permit up to date (partial, whole, contractor, builders, etc.);
- Submitting the Notice of Termination (NOT) within thirty days of meeting requirement of final stabilization;
- Identifying who has long term operation and maintenance responsibility of the permanent stormwater controls;
- Developing a chain of responsibility with the operators to ensure NPDES and SWPPP compliance;
- Identifying trained personnel to oversee the SWPPP and conduct inspections;
- Identifying trained personnel to develop a SWPPP; and
- Identifying trained personnel to install and maintain best management practices.

5.2 Project Type and Proposed Conditions

5.2.1 Non-Vegetative Cover

Proposed non-vegetative cover will include access paths to the excavation areas.

5.2.2 Vegetative Cover

Proposed vegetative cover includes preservation of existing vegetation and restoration of disturbed areas with the seed mix in Section 9.3.3.

5.2.3 Land Use

The project will consist of access paths and turbine excavations to prepare for potential vertical installation of wind turbines for a future wind facility.

5.3 Pre and Post Project Estimates

Table 6: Project Area Estimates

Project Area	Disturbed Area	Existing Impervious Area	Post Construction Impervious Area
646 Acres	5.35 Acres	0.0 Acres	0.0 Acres

5.4 Construction Activity Overview

Construction activity includes the excavation of two turbine foundations pits and installation of mud mats. Construction on-site will include, but is not limited to, the installation of access paths, excavation of 80–120 feet diameter foundation pits, and installation of concrete mud mats. The excavation pits will be backfilled following mud mat construction. Minor improvements may be necessary for some existing roads and radii for equipment access and stability. This SWPPP shall be amended to show locations and disturbance areas as necessary should locations change during construction.

5.5 Construction Activity Description

NOTE: All sensitive areas shall be marked prior to start of earth disturbance activities. If any subsurface (tile drains, culverts, etc.) and/or surface drainage features (ditches, etc.) are altered during construction, they will be restored to pre-construction conditions and drainage patterns. Restoration work will be coordinated with the landowner.

1. Phase/Sequence: Pre-Mobilization

Construction Activity	Schedule Considerations and BMP References
Crew / Team Orientation	Plan page turn, scope clarification, work instructions and crew orientation. Contractors and landowner coordination or landowner liaison coordination is recommended.

Phase/Sequence: 1

Construction Activity	Schedule Considerations and BMP References
Identify clearing and grading limits, sensitive areas, and wetlands prior to construction.	Flag, delineate, installation of barriers and/or signage should be installed for areas of interest, sensitive areas, buffer setbacks, vegetated areas to be preserved (do not disturb areas).

Phase/Sequence: 2

Construction Activity	Schedule Considerations and BMP References
Construction Access – installation of entrances to the site and initial construction routes (access paths), storage, and parking areas	This is the first land disturbing activity. Clear and grub areas to complete construction activity and install perimeter sediment controls as shown in the plan and as deemed necessary by a certified or knowledgeable inspector on site. Minimal clearing/grading should take place in preparation for access installation as indicated on site drawings. Utilize timber matting for access paths to avoid excessive compaction during rainy conditions. Install geotextile liners at rock exit pads to minimize track out. Clear topsoil and stockpile material for reapplication, as necessary. Stockpiles should be tracked, seeded, and temporarily stabilized.

Phase/Sequence: 3

Construction Activity	Schedule Considerations and BMP References
Perimeter Sediment Control BMP Installation	Continue necessary tree clearing and grubbing as necessary to install perimeter sediment controls. Plan temporary seeding and permanent seeding with temporary stabilization of perimeter slopes; install temporary seed and permanent seed and temporary stabilization within timeframes of the CGP.

Phase/Sequence: 4

Construction Activity	Schedule Considerations and BMP References
Turbine Excavation Areas	Strip and segregate topsoil and apply topsoil in a soil berm around the downgradient perimeter of the turbine pad area. Install silt fence at the perimeter, as necessary, and as shown on the plans. Excavate areas required for the foundation installation and stockpile the subsoils. Construct concrete washout areas or using a common concrete washout during concrete work of mud mat and foundation work. Dewater accumulated groundwater and/or stormwater via pump and dewatering bag, as necessary, ensuring discharged water does not contribute sedimentation to receiving waters. Utilize timber matting for stabilized access to excavation area for concrete pump trucks. Provide temporary stabilization measures, such as mulch and erosion control blanket. Temporarily cover the stockpiles with hydromulch or other temporary stabilization BMP for water and wind erosion protection within timeframes of the permit. Backfill foundation excavations following mud mat.

Phase/Sequence: 5

Construction Activity	Schedule Considerations and BMP References
Continuation of BMP maintenance and routine inspections.	Continue routine inspections until final perennial vegetation or non-vegetative cover is achieved per requirements of the CGP. Maintain all BMPs in working and effective order until final stabilization is

	achieved. Confirm with site inspector on timing of Notice of Termination to close the NPDES Permit.

Phase/Sequence: Post Construction

Construction Activity	Schedule Considerations and BMP References
Submission of NOT and retention of records.	Submit the NOT to the state agency and local jurisdiction, as necessary. Retain all records, inspections, and documentation for at minimum 3 years after the NOT is authorized.

5.6 Project Activity Schedule

Table 7: Project Schedule

Activity	Start Date	End Date
Overall Project	7/21/25	9/29/25
Installation of Stormwater Controls / BMPs	7/21/25	
Grading Activity	7/23/25	8/18/25
Access Paths	7/23/25	8/18/25
Excavations / Foundations	7/23/25	8/18/25
Final Restoration	8/18/25	9/29/25
Notice of Termination	9/29/25	

5.7 Project Phasing

Construction will follow a general rolling phasing sequence to account for limitations of crews and resources. The sequence of construction activity will also take place to limit the extent and duration of exposed soils. Areas that are cleared, graded, or disturbed at any given time shall be limited to the portion of site that is necessary for construction and can be effectively controlled by the available personnel and material. Construction activities will take place along with erosion/sediment control BMP installation. BMPs will be installed prior to ground disturbing activities and will be maintained throughout the entirety of the project, and site cleanup and restoration of disturbances will be ensured once construction is complete.

5.8 Project Contacts and Chain of Responsibility

Table 8: Project Contacts

Company*	Name or Position	Responsibility	Contact Number
Deuel Harvest Wind Energy South LLC	David Newsome	Site Development	312-582-1214
		Dirt Work / Grading / Turbine Excavation	
Rachel Contracting	Matt Peterson	Project Environmental Contact	608-844-7732
Rachel Contracting	Matt Peterson	Routine SWPPP Inspections	608-844-7732
Westwood Professional Services	Aaron Mlynek, CPESC	SWPPP development	612-363-6146
		Restoration	
Rachel Contracting	Matt Peterson	BMP installation	608-844-7732
Rachel Contracting	Matt Peterson	BMP Maintenance	608-844-7732

6.0 Additional Site or Project Considerations

6.1 Chemical Treatments

At the time of SWPPP completion the use of chemical additives or polymers for purposes of sediment flocculation are not anticipated for this project. Should chemical treatment become necessary based upon inspection results, weather conditions or construction means and methods the table below must be updated to reflect the chemical used. IMPORTANT: Prior approval from the SDDANR is necessary for any chemical additive for discharging stormwater.

Table 9: Flocculation Plan Summary

Flocculation Chemical	Application Location	Primary Soil Types	Settling BMPs Used	Application Method	Receiving Water	Mfr Dosing Rate

6.2 Environmental Review Document

At the time of SWPPP completion, there are no known environmental review documents which apply to this project.

6.3 Endangered or Threatened Species

The proposed project is not federally funded and does not require EPA approval, however the SDR100000 General Permit does not authorize stormwater discharges that threaten federally listed endangered species. An IPaC Resource List inquiry was conducted to determine what endangered or threatened species could potentially be on or near the project area and be potentially affected by construction activities.

There are five (5) threatened or endangered species that could potentially be affected by the project with this area.

Table 10: Endangered and Threatened Species

Species Common Name	Species Scientific Name	Federal Status	Proposed Effect	Explanation
Northern Long-eared Bat	*Myotis septentrionalis*	Endangered	No effect	No critical habitat has been designated within project area.
Rufa Red Knot	*Calidris canutus rufa*	Threatened	May affect, not likely to adversely effect	Proposed critical habitat has been designated within project area, but proposed land impact is minimal and is adjacent to existing developed land.

Topeka Shiner	*Notropis topeka (=tristis)*	Endangered		There is final critical habitat for this species. Your location does not overlap the critical habitat.
Dakota Skipper	*Hesperia dacotae*	Threatened		There is final critical habitat for this species. Your location does not overlap the critical habitat.
Monarch Butterfly	*Danaus plexippus*	Candidate		No critical habitat has been designated for this species.

An unofficial IPaC report (accessed 07/09/2025) can be found in Appendix G with more details on this information.

6.4 Wetlands

Wetland delineations were completed in November 2022 and August 2023 for the project. A total of 128 wetlands encompassing 102.1 acres within the Survey Corridor were delineated. The delineated wetland types included PFO, PSS, PEM, and PUB. The Survey Corridor encompassed the whole wind project area. See Appendix G for the wetland evaluation report, completed by Burns & McDonnell dated 11/03/2023.

6.5 Cultural Resources

According to the South Dakota State Historical Society's website, the project area and surrounding property is not included on the National Register of Historic Places, and it is also not included on the National Park Service's list of National Historic Landmarks.

Therefore, the stormwater discharges or related activity will not affect property protected by federal, state, or local historic preservation laws.

7.0 Receiving Waters

The table below summarizes the immediate receiving waters from the site. Where necessary the receiving waters has been designated immediate (for the first surface water receiving drainage from the site) and ultimate (for the surface water receiving runoff from site after the immediate receiving waters). The receiving waters listed are located within a mile and receive water from the site discharge location(s).

The site drains to the northeast via unnamed streams and overland flow. The streams flow north and northeast and eventually discharge to Hidewood Creek, approximately 4 miles away from the site. Refer to Appendix D for drainage maps.

Table 11: Receiving Waters

Name of Receiving Waterbody	Immediate (I) or Ultimate (U)	Type (wetland, lake, stream, ditch)	Impaired? Y/N	MS4? Y/N
Unnamed Stream	I	Stream	N	N
Hidewood Creek	U	Stream	Y	N

7.1 Impaired and/or TMDL Waters

There are no impaired waterbodies which receive stormwater discharge within one mile of the site's disturbed area according to the Surface Water Quality Standards Search, South Dakota Department of Agriculture and Natural Resources website: (https://sdgis.sd.gov/portal/apps/experiencebuilder/experience/?id=60c4f285d6c1458db0f6eac2b4f26c04 accessed 07/03/2025) and the 2022 South Dakota Integrated Report for Surface Water Quality Assessment website: https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_2022_IR_approved.pdf Refer to Appendix D for impaired waters maps.

8.0 Stormwater Management

8.1 Temporary Practices

There are no anticipated temporary stormwater management practices at the time of SWPPP completion due to no contiguous 10 acre drainage areas discharging to a common point or no contiguous 5 acre areas in impaired or special waters areas.

8.1.1 Calculations

Calculations are not applicable to this project as there are no temporary stormwater management practices requiring calculations. Should a temporary basin or trap become necessary during construction the site inspector shall coordinate with the engineer of record and the SWPPP developer to amend the SWPPP narrative, erosion control plan, and Table 11 below.

Table 12: Temporary Sediment Basin Calculations, if required.

Basin #	Storm Frequency	Rainfall Amount	Runoff Area	Runoff Volume	Capacity Needed
1	2 yr. / 24 hr.	2.60"	Acres	ac ft.	ac ft.
2	2 yr. / 24 hr.	2.60"	Acres	ac ft.	ac ft.
3	2 yr. / 24 hr.	2.60"	Acres	ac ft.	ac ft.

8.2 Permanent Practices

There are no permanent stormwater practices anticipated for this project activity.

8.2.1 Calculations

Calculations are not applicable to this project as there are no permanent stormwater management practices requiring calculations.

9.0 Implementation of Temporary and Permanent Control Measures

9.1 Soil Management and Compaction Minimization

After clearing and grubbing, the grading contractor will strip and stockpile topsoil material for reapplication on all future permanent pervious surface areas. During development, grading and utility construction the subsoils will be compacted as necessary for construction using typical excavation techniques. During final grade, reapplication of 4 to six inches of topsoil will be done by a wide-pad dozer and other equipment to minimize compaction of the topsoil material.

9.2 Natural Buffers and No-Disturbance Areas

9.2.1 Natural Buffers

An undisturbed fifty foot buffer zone will be preserved for all water bodies near disturbance limits. The use of linear sediment controls will be installed upgradient to provide sediment control and delineate the fifty foot buffer. Refer to the site erosion and sediment control plans for the location of the buffer. The following activities are prohibited to take place within the buffer area:

- Placing stockpiles ;
- Disturbing vegetation;
- Placing construction material; and
- Storing gas, oils, or other potentially polluting material.

9.2.2 No-disturbance Areas

There are no no-disturbance areas within the project boundary.

9.3 Erosion Prevention Practices

The following controls are anticipated to minimize soil loss from the construction site area. The controls should help to minimize soil from being transported from water and wind as well as aide in establishment of temporary and permanent vegetation. Prior to grading and during clearing and grubbing, the areas of vegetation preservation, buffers and other areas of no-disturbance should be flagged, staked or otherwise delineated.

9.3.1 Timing for disturbed areas and slopes

Temporary erosion prevention practices should be initiated immediately after construction activity disturbing soil in an area is temporarily or permanently ceased for a period of 14 days. The application of temporary erosion control management practices should be completed prior to the fourteenth day of temporarily or permanently ceasing construction activity in an area of the project.

9.3.2 Stockpile Management

- Locate the stockpiles and debris outside of any natural buffers established and away from any stormwater conveyances, drain inlets, and areas where stormwater flow is concentrated;
- Protect the stockpile debris from contact with stormwater run-on by using temporary sediment controls, berms, or other best management practices;
- Properly maintain and position stockpiles to minimize dust generation and wind transport of sediment; and
- Minimize stormwater runoff from the piles by properly positioning stockpiles and debris or installing effective sediment controls.
- Operators shall not place stockpiles in surface waters of the state.

Table 13: Erosion Controls

Potential BMPs	Construction Phase or Activity		Application Notes	
	Access Paths	Turbine Excavation/ Mud Mats		
Construction Phasing	X	X	Minimize soil disturbance, as feasible, per phase. Stake/flag areas that are to be left undisturbed.	
Buffer Strips	X	X	See Section 9.3 for more information.	
Slope Roughing	X	X	Use tracked equipment perpendicular to contour on steep slopes for temp/short term erosion control.	
Straw / Hay Mulch	X	X	Apply at two tons / acre. Disc anchor to soil. Weed Free mulch should be used.	
Erosion Control Blanket	X	X	Install per manufacturer's recommendations.	
Hydroseed	X	X	Apply at a rate defined from manufacturer or supplier from two directions to prevent shadowing.	
Temporary Seed Mix	X	X	See below	Prepare soil prior to seeding. Broadcast and rake seed into soil prior to mulch or blanket.
Permanent Seed Mix	X	X	See below	Prepare soil prior to seeding. Broadcast and rake seed into soil prior to mulch or blanket.
Timber Matting	X			

9.3.3 Potential Seed Mix

South Dakota Department of Transportation Type B Permanent Seed Mixture:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk, Chief, Nebraska 54	3
Big Bluestem	Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza	3
Canada Wildrye	Mandan	2
	Total:	18

9.4 Sediment Control Practices

The following controls are anticipated to minimize sediment discharge, capture sediment in suspension and minimize sedimentation off site.

Table 14: Sediment Controls

Potential BMPs	Construction Phase or Activity		Application Notes
	Access Paths	Turbine Excavation / Mud Mats	
Silt fence	X	X	Machine sliced install w/ wood posts at six feet spacing. Install perimeter silt fence prior to grading
Fiber rolls	X	X	Install on contour, minimum of nine-inch roll, wood or straw fiber. Secure with two inch posts every two feet on center.
Topsoil Berms	X	X	Side slopes of 3:1 with at least one foot height. Use temporary erosion control to stabilize berm.

9.5 Run-on and Runoff Controls

The following controls are anticipated to minimize scour, transport water across or down steep slopes or critical areas, divert clean water, and / or provide temporary conveyances to maintain drainage.

Table 15: Run-on and Runoff Controls

Potential BMPs	Construction Phase or Activity		Application Notes
	Access Paths	Turbine Excavation/ Mud Mats	
Riprap Apron / Energy Dissipation		X	See detail in plans. Install within twenty-four hours of connection to surface water in the state.
Diversion Berm		X	See detail in plans. Use temp erosion control to stabilize berm. Install prior to disturbing down gradient areas.
Culvert Protection	X	X	See details in plans. Install within twenty-four hours of installation of culverts.
Dewatering Outlet/ Settling Basin		X	Refer to detail SW-51 in Appendix E for more information.

9.6 Tracking Controls

The following controls are anticipated to minimize or prevent sediment track-out from construction site exits to paved surfaces or to retrieve material tracked onto paved surfaces to minimize or prevent the material from being washed into surface waters or stormwater inlets.

Table 16: Tracking Controls

Potential BMPs	Construction Phase or Activity		Application Notes
	Access Paths	Turbine Excavation/ Mud Mats	
Rock Pad	X		See detail in plans. Install at all site exits prior to grading. Maintain for duration of project.
Street Scraping	X		Scrape large clumps/amounts of material with soft tracked or wheeled equipment prior to sweeping.
Street Sweeping	X		Sweep paved surfaces within twenty-four hours of discovery.

9.7 Dewatering and Basin Draining Practices

The project is not anticipated to have site dewatering occur. However, if it should be necessary, it will be performed in accordance with the SDDANR standard specifications described below.

Dewatering Accumulated Water (via pulp, trench, temporary ditch or grade cuts):
Dewatering of turbid water (water that is visibly cloudy or brown in color) should be discharged via pump and hose or overland flow to a temporary sediment basin for pretreatment. The use of riprap apron (energy dissipation) should be used for the discharge location. If riprap is not used, an alternative form of energy dissipation should be used to prevent scour and re-suspension of soil at the discharge point of the hose. If discharge to a temporary sediment basin is not feasible, the use of dewatering dumpsters, dewatering bags or other prefabricated product should be used. The use of rock checks, erosion control blanket and sumps or traps may be considered for overland flow. After the use of BMPs, the water could be discharged through a vegetated buffer and energy dissipation. The discharge of water from the site should be visibly clear in appearance.

The discharge of accumulated water should not:

- Contain oil, grease, a sheen, odor, or concrete washout;
- Adversely impact adjacent properties with water or sediment;
- Adversely impact waters of the state;
- Cause erosion of slopes and channels;
- Cause nuisance conditions; or
- Contribute to inundation of wetlands which negatively impact the wetlands.

NOTE: The permittee may be required to obtain a Temporary Water Right. Contact the SDDANR at 605-773-3351 for more information. It is the operator and permittee responsibility to obtain necessary water rights.

9.8 Sampling Requirements

If the discharge observed contains suspended solids the following must be implemented:

- Installation of additional best management practices and update this SWPPP.
- Sample the dewatering discharge for total suspended solids on a daily basis until there is no longer a discharge of visible solids.
- Samples must be analyzed in accordance with 40 CFR, Part 136 which may require sending the samples to an off-site laboratory for analysis.
- If the sample results exceed 53 mg/L in any sample or measurement you must cease the dewatering discharge to surface waters of the state until the operator can demonstrate additional best management practices are sufficient to eliminate visible pollutants.
- Document sampling and results or any updates in this SWPPP.

10.0 Pollution Prevention Management

10.1 Potential Pollutant Sources

Potential pollutant sources including construction and waste materials that are used or stored at the site are described below. Upon proper implementation of the BMPs, potential pollutant sources are not reasonably expected to affect the stormwater discharges from the site. Construction materials and chemicals used or stored on site should be kept in small quantities whenever possible. Materials shall only be stored in non-sensitive areas and not in close proximity to watercourses, wetlands or floodplains.

A spill prevention, control, and countermeasure plan (SPCC) will be needed if materials or tanks present on site contain more than, or have the ability to contain more than, 1,320 gallons of petroleum products. When not in use, petroleum products should be stored in sealed containers and out of contact with the elements to prevent direct contact with stormwater. Inadvertent spills should be cleaned up immediately upon discovery and the materials should be disposed of in accordance with local, state, and federal requirements. Contractors should have spill kits available on site for rapid deployment to contain and cleanup spills.

Table 17: Potential Pollutants List

Potential Pollutant	Location	Control Measure*
Antifreeze	Vehicle/Equipment	S.C./Drip pan
Diesel Fuel	Vehicle/Equipment/Fuel Tank	S.C./Drip pan
Gasoline	Vehicle/Equipment/Fuel Tank	S.C./Drip pan
Hydraulic Oils/Fluids	Vehicle/Equipment	S.C./Drip pan
Grease	Vehicle/Equipment	S.C./Drip pan
Sanitary Waste Restrooms	Portable	Service provider to secure units from tipping
Building Materials and Products	Various	Under cover (such as plastic sheeting or tarps)
Trash and Construction Debris	Various	Dumpster with covers or tarps, plastic sheeting, or temporary roof
Paints	Contractor	S.C. and secure/covered storage.
Glue/Adhesives/Curing Compounds	Contractor	S.C. and secure/covered storage.
Soil Amendments	Various	S.C. and secure/covered storage.
Landscaping Materials/Fertilizer	Various	S.C. and secure/covered storage.
Concrete Mortar	Mobile Mixer	S.C./Washout Area and secure/covered storage
Concrete	Trucks/Washout	S.C./Washout Area

Bentonite	Directional Boring/Utility Contractor	S.C./Sump area
Sediment	Exposed soils/Disturbed Areas	Sediment, Erosion, Tracking, and Runoff Controls

*S.C. refers to secure secondary containment unit or area.

10.2 Potential Non-Stormwater Pollutant Sources

Non-stormwater discharges shall be eliminated or reduced to the extent feasible, with the exception of those necessary for the completion of certain construction activities. However, it is recognized that this permit does not authorize discharges mixed with non-stormwater.
A list of allowable non-stormwater discharges includes the items below.

Table 18: Potential Non-Stormwater Discharges

Type of Allowable Non-Stormwater Discharge	Likely to be present at site? Yes / No
Discharges from emergency fire-fighting activities	No
Fire hydrant flushing (uncontaminated and not hyper-chlorinated)	No
Waters used to wash vehicles, buildings, and structures to remove mud, dirt, or dust. (Detergents and soaps are not allowed; external building wash down cannot contain hazardous substances such as paint or caulk containing PCBs)	No
Water used to control dust	Yes
Potable water; including uncontaminated waterline flushing (not hyper-chlorinated)	No
Uncontaminated air conditioning or compressor condensate	No
Uncontaminated, non-turbid discharges of ground water, spring water, or foundation or footing drains	Yes
Landscape irrigation	No
Pavement wash waters (if no spills, leaks, or detergent use)	No
Uncontaminated flows from excavation dewatering activities, if operational and structural controls are used	Yes

These authorized non-stormwater discharges should be conducted in accordance with the requirements of the Construction General Permit (CGP), and every effort should be made to minimize non-stormwater runoff from these site activities.

The operators are responsible to implement the following BMPs and management for non-stormwater discharges.

- Discharges From Fire Fighting Activities: Due to the emergency nature of this activity the use of BMPs is not expected. Reasonable efforts to repair, clean up, and reinstall sediment and erosion control BMPs will be completed after the emergency nature of the situation is resolved.

10.3 Storage, Handling and Disposal of Construction Materials

10.3.1 Storage and Handling

- All products shall be kept in their original container, with original labels still attached, unless the container is not re-sealable.
- Storage of all diesel fuel, oil, hydraulic fluids, other petroleum products and other chemical and products must be within water-tight containers.
- Hazardous materials shall be returned to the hazardous material storage area at the end of each day and be contained within sealed containers and provide secondary containment as applicable.
- An effort should be made to store only enough products to do the required job.
- The contractor shall provide tanks or barrels to collect liquid byproducts that pose a pollution hazard.
- The pollutants shall be removed from the site on a weekly basis and disposed of in accordance with federal, state, and local regulations.
- All spills shall be cleaned up immediately after discovery, in accordance with the manufacture's recommended methods.
- Hazardous materials shall be properly stored to prevent vandalism or unauthorized access.
- Containment units shall be installed in accordance with federal, state, and local regulations.
- No hazardous material shall be stored within 200 feet of an identified critical area.
- If building materials, chemicals, or general refuse is being used, stored, disposed of, or otherwise managed inappropriately, the contractor shall correct such defects within twenty-four hours of detection or notification.

10.3.2 Disposal (Dumpsters)

- Locate dumpsters away from watercourses, streams, creeks and other surface waters or conveyances.
- Site inspector shall regularly observe for and report excess litter and solid waste and request pickup and retrieval of wastes.
- Wastes, litter, debris shall be deposited into dumpsters in a central location and / or in various satellite locations where work is active.
- Dumpsters should be supplied by and regularly maintained, emptied, and removed by a waste management company.

10.4 Fueling and Maintenance of Equipment and Vehicles; Spill Response

- Routine maintenance of vehicles may occur in staging areas only if necessary.
- Avoid maintaining equipment and vehicles on site and perform maintenance off site where feasible.

- If fueling is done by mobile tank and dispenser, provide close supervision for the transfer of fuel, use drip pans, and make spill containment and cleanup materials readily available.
- If fueling is done via temporary tank, store the tank within a bermed, area and away from surface waters.
- Make Spill Kits with absorbent materials available on site for use in cleaning up small spills.
- In the event of a spill or discharge of hazardous material of reportable quantity, contact the South Dakota Notification Center (605-773-3296), the South Dakota After Hours Center (605-773-3231), If the hazardous condition involves the release of an EPA regulated material or an oil as defined by the EPA, the release may also need to be reported to the National Response Center. Federal Reporting is required within 15 minutes of event occurrence or discovery. Contact the National Response Center at (800) 424-8802. The NRC is staffed twenty-four hours a day. For more information reference the following website: https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release .

Table 19: Reportable Spill Quantities

Material	Reportable Spill Quantities	Where Discharged
Petroleum Material – other than gasoline	5 gallons or more; OR any amount that threatens or is in a position to threaten waters	Onto pervious surface or runs off an impervious surface
Gasoline	1 Gallon	Onto pervious surface or runs off an impervious surface
PCB Oil	1 Pound	Onto pervious surface or runs off an impervious surface
Other Material	25 gallons or more; OR Any quantity that causes impact to human health; impact to the environment (surface or ground water, wildlife, aquatic life); creates a fire, explosion, or safety hazard; or has any other obvious indicator of pollutants such as odor, color, sheen, or foam.	Onto pervious surfaces or runs off an impervious surface

10.5 Vehicle and Equipment Washing

If necessary, the contractor shall develop a designated wash area with basin containment to prevent the untreated water from discharging from the site to surface waters. BMPs include, temporary basins, inspecting the vehicles and equipment for leaks prior to washing, and prohibiting washing activity until discovered leaks are repaired and maintenance is completed of the equipment or vehicle. The area shall be identified on the site plan. Contain the water, and pump from the site into a truck for proper disposal at a waste water facility. No engine degreasing may be done on site.

10.6 Concrete Washout and Other Washout

10.6.1 Mobile Concrete and Mortar Mixers

Implement the following BMPs with the use of mortar or concrete mixers.

- Store bags of concrete and mortar in dry storage.
- Position mixers a minimum of 100 feet from the nearest watercourse or conveyance.
- If mixers must be positioned closer than 100 feet from a conveyance, install a temporary berm to prevent runoff from the mixer from flowing into the conveyance.
- Use Tarpaulins or plastic sheeting as a liner to prevent concrete or mortar from contacting the soil.
- Use buckets to contain washout /rinse water when cleaning the mobile mixer.
- Dump buckets of washout water in a designated concrete washout area.

10.6.2 Concrete Washout

Implement the following BMPs implemented for concrete washout areas.

- Contain washout water from the tools, equipment, and the chutes of concrete trucks, mobile mixers, or other containers with concrete material, and do not allow it to be discharged into waters of the state or drain onto adjacent properties.
- Define the washout area with signage notifying the contactors of the location and use.
- The washout area should be a sufficient size to contain the expected washout material. 10'x10'x3' area should suffice for most activities.
- Multiple washout areas may be needed. Locations of the washouts should be shown on the construction plans by the contractor.
- When identifying the location of the concrete washout areas, include the date of install, date of last maintenance, and date of removal.
- Use thick poly sheeting to prevent contamination of the soil, and prevent infiltration of the washout material.

Once the material is hardened it can be disposed of in a dumpster. If the material is liquid or not hardened, vacuum the material up, haul it off site to properly disposed of or recycle at an approved facility. Some sites will not need the separate washout area if a truck chute washout is available from the concrete supplier.

10.6.3 Truck Chute Washout

Where available, all trucks with self-contained washout and water recycle systems must be used for every truck chute, tool, and equipment rinse and washout. Position the truck in a flat area, away from inlets and surface waters where feasible.

10.7 Portable Sanitary Facilities

- Locate facilities away from watercourses, streams, creeks, and other surface waters or conveyances.
- Place facilities upgradient of perimeter sediment controls, and not on paved or other impervious surfaces.
- Secure facilities to the soil with stakes or tether to other non-movable structure to prevent tipping from wind or other factors.
- Schedule routine and regular cleanout and maintenance of facility from a reliable company.

11.0 Inspection, Maintenance, and Corrective Actions

Construction activity and all support activities must be inspected (using the inspection form found in Appendix F or an alternative form) within the parameters of the schedule below. The inspector shall be a person trained and familiar with the requirements of this SWPPP and the SDR100000 Permit. This person is delegated by the owner and listed in Section 5.7.

Scope of inspections* should include:

- Date and time of inspections;
- Inspector's name;
- Findings of the inspection;
- Locations of corrective actions needed;
- Corrective actions taken (date/time/ who);
- Date and amount of rainfall**
- Observed discharge locations;
- Description of discharges with color, odor, floating, settled, solids, foam, or oil sheen;
- Photographs of discharges

Amendments from inspections need to be completed within seven days (see SWPPP section 3.1).

*All inspections should be documented within twenty-four hours after completing the field inspection, and available in paper or electronic form on site.

**Rainfall amounts should be taken from an onsite rain gauge. If a rain gauge is not feasible, the rain fall data should be observed from the following website: (insert website with nearest rain reporting station from http://www.crh.noaa.gov/mpx/ or https://www.weather.gov/crh/).

11.1 Inspection Schedule

Table 20: Inspection Schedule

If the site is:	Then an inspection is needed:	Notes and Information
Active	☐ Once every fourteen calendar days and within twenty-four hours of a rainfall ≥ 0.25", OR ☒ Once every seven calendar days	A rain gauge should be used or rain data should be taken from the link listed above.
Active and Inactive areas: "Partial Final Stabilization"	• Once every month	Allowed in areas where work is completed and vegetation is established. Other/active areas must follow above.

Inactive: "Final Stabilization"	• Once every month, for 12 months (not including frozen conditions)	Once 12 months of inactivity and stabilized conditions has past, inspections can be ceased until site activity resumes.
Subject to Winter/Frozen Conditions	• Once every month	Applies if all disturbed areas of the site have been temporarily or permanently stabilized and earth-disturbing activities are suspended due to conditions. Required to resume "active" inspection frequency no later than March 1st of each year.

11.2 Maintenance Schedule

Table 21: Maintenance Schedule

BMP	Observed Condition for Maintenance	Maintenance Interval
All non-functional BMPs	Sediment overtopping, under water, scoured ends, undermined, destroyed, non-functional as designed, etc.	Maintenance must be done by the end of the next work day or if the BMP requires replacement: it should be done within seven calendar days or prior to forecast rainfall, whichever is sooner. If sediment escapes the construction site: begin removing the offsite accumulations by the end of the same work day.
Vegetative Buffer	Silt covered, rill erosion observed or otherwise ineffective	Repair by the end of the next working day.
Stabilized Areas (temporary or permanently)	Rill erosion, gulley erosion is observed. Mulch washed away or erosion control blanket is undermined.	Repair and stabilize eroded areas and non-functional stabilization BMPs by the end of the same work day.
Perimeter Sediment Control (silt fence, fiber logs, berms, etc.)	½ full of sediment, flattened to ½ height, driven over, undermined, scoured, moved for access etc.	Maintenance of the BMP: by the end of the next work day or if replacement is required: complete replacement within seven days of discovery or notice or prior to forecast rainfall, whichever is soonest.
Inlet protection BMPs, conveyances, surface waters	Sediment deposition, sediment deltas and accumulation of sediment material.	Removal/cleanout of accumulated sediment and deltas to be removed within seven days. Stabilize as needed if soils are exposed during removal/cleanout.
Temp sed basins and traps; permanent sediment basins	Sediment deposition and accumulation to ½ of the storage volume.	Cleanout, remove accumulated sediment material within seven calendar days or prior to forecast rainfall, whichever is sooner.
Site exit locations, rock exit pads, other anti-tracking practices	Accumulated sediment in rock or other anti-tracking BMP, tracking of sediment from the site onto paved surfaces	Top dress rock, maintain rock exit or other anti-tracking controls, scrap paved surfaces, sweep paved surfaces by the end of the same work day.
Paved surfaces; adjacent streets	Tracked sediment and soil material from the site hauling or access	Sweep within the same work day of discovery; additional and/or more frequent sweeping may be needed to maintain public safety or prevent washing from forecast rains.

11.3 Corrective Actions

A corrective action report is needed if: a repair; modification; or replacement of any stormwater control is necessary; or if cleanup and disposal of spills, releases, or other deposits are needed; or if a permit violation is remedied. For each corrective action taken, a report with the following information must be documented and maintained with the SWPPP within twenty-four hours:

1. Which condition requiring correction was identified at the site;
2. The nature of the condition identified; and
3. The date and time of the condition identified and how it was identified.

Within seven calendar days after the inspection resulting in a corrective action report being necessary, the following is needed:

1. Any follow-up actions taken to review the design, installation, and maintenance of stormwater controls, including the dates such actions occurred;
2. A summary of stormwater control modifications taken or to be taken, including a schedule of activities necessary to implement changes, and the date the modifications are completed or expected to be completed; and
3. Notice of whether SWPPP modifications are required as a result of the condition identified or corrective action.

12.0 Training Requirements and Documentation

12.1 Training Requirements

The person inspecting the project site shall be knowledgeable in the principles and practice of erosion and sediment controls and pollution, possess the skills to assess conditions at the site that could impact stormwater quality, and is able to assess the effectiveness of any control measures selected and installed to meet the requirements of the SDR100000 General Permit.

Training for how to conduct site inspections and how to implement the SWPPP must be provided annually at a minimum, as new employees or responsible parties are hired, or as necessary to ensure compliance with the SWPPP and the SDDANR SDR100000 General Permit. Responsible parties include individuals who are responsible for conducting inspections or who are responsible for the design, installation, maintenance, or repair of stormwater controls.

Therefore, all staff who is responsible for the SWPPP and stormwater controls must have formal training and documentation (certificate of completion) in order to conduct site inspections. Options for formal training are listed below. Only one course is required, not all.

- Federal EPA CGP Site Inspector training
  - No fees
  - Will need to also familiarize with the State of South Dakota's construction and training requirements
  - Found at: https://www.epa.gov/npdes/construction-general-permit-inspector-training
- South Dakota SWPPP Training Course provided by Stormwater ONE
  - $549 per person
  - Found at: https://stormwaterone.com/program/course/CP240R/south-dakota/storm-water-pollution-prevention-plans
- Other approved non-EPA training courses can be found at: https://www.epa.gov/npdes/construction-general-permit-inspector-training#nonepa

The following topics must be covered in the training, and the training should be related to the scope of job duties for each personnel. At a minimum, training should include:

- Location of stormwater controls;
- Maintenance requirements and maintenance needs for BMPs;
- Procedures and permit requirements for pollution prevention;
- When and how to conduct inspections;
- Record keeping; and
- Corrective actions.

A more detailed description of site inspector requirements and responsibilities during inspections can be found in Section 4.0 of the SDDANR SDR100000 General Permit located in Appendix A.

12.2 Training Documentation

The site inspector shall keep the training documentation up-to-date using the training log in Appendix F or an alternative form.

The following table summarizes the personnel involved with this project, their training status, and their responsibilities.

Table 22: Training Role and Summary

Project Role / Task	Name	Company	Training Course / Entity
SWPPP Preparer	Aaron Mlynek	Westwood Professional Services	CPESC
Site Inspector / SWPPP Amendments			
Alternate Inspector, if applicable			
BMP Installer and Maintenance Provider			
Corrective Actions			

NOTE: At the time of SWPPP preparation, not all details were finalized for specific contacts for each project role and / or their training status. Roles are subject to change. All changes will be included in the SWPPP Amendments section of this report.

13.0 Final Stabilization

Final stabilization is achieved for the project when permanent erosion control BMPs are applied to the site. The permanent erosion control BMPs may be a combination of vegetative and no vegetative cover types. Additional requirements to achieving final stabilization include:

- All soil disturbing activity is complete;
- Permanent stormwater treatment system (if required) is constructed and accumulated sediment from construction activity has been removed;
- All temporary, synthetic BMPs have been removed from the site;
- In agricultural areas (as applicable), the construction activity area has been restored to the pre-construction agricultural use; and
- The vegetative cover for the site is at a density, with a uniform perennial cover of 70 percent of the expected final growth density.

13.1 Vegetative Cover / Permanent Erosion Control

The planned permanent erosion control vegetative cover BMPs for this site include temporary and permanent seed mixes after construction activities.

Minimization of the presence of invasive species is required. The following seven weeds are declared to be noxious in South Dakota: Canada thistle, hoary cress, leafy spurge, perennial sow thistle, purple loosestrife, Russian knapweed, and salt cedar.

13.2 Non-vegetative Cover / Permanent Erosion Control

The planned permanent erosion control non-vegetative cover BMPs for this site include gravel for access paths if necessary.

14.0 Notice of Termination (NOT)

The project permit may be terminated in one of the following scenarios.

- All construction activity is complete, temporary synthetic BMPs are removed, accumulated sediment from construction is removed, and final stabilization is completed with vegetative and/or non-vegetative cover. The Notice of Termination form from the South Dakota Department of Agriculture and Natural Resources should be completed within thirty days of meeting the conditions above. Upon midnight of the post marked date, the permit coverage is terminated unless otherwise notified by the SDDANR.
- Within thirty days of selling or otherwise legally transferring ownership of the site in its entirety (including street sweeping and stormwater infrastructure) from the original owner to another party taking responsibility of ownership.
- Where the project obtained permit coverage but never started construction activity due to cancellation or other reasons. Documentation should be sent to the SDDANR with the NOT form and is subject to SDDANR approval.

15.0 Record of Retention

15.1 During Construction

This report, amendments and attachments, inspections, and maintenance records should be kept on site during normal business hours. The records should be kept by the owner or operator listed on the permit application. The records should be in a mailbox, in a vehicle or in an on-site office trailer or model home.

15.2 Post Construction / Notice of Termination (NOT)

The site owner must retain all the following records for a period of at least three years after the submittal of the NOT:

- The final SWPPP with all field notes/amendments;
- Other stormwater related permits in addition to the NPDES permit from SDDANR;
- Inspection and maintenance records;
- All permanent operation and maintenance agreements; and
- All required calculations for design of the temporary and permanent stormwater management systems

Appendix A

South Dakota General Permit for Stormwater Discharges Associated with Construction Activities SDR100000

Permit Number: SDR100000

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES

General Permit Authorizing Stormwater Discharges Associated with Construction Activities Under the South Dakota Surface Water Discharge System

In compliance with the provisions of the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota (ARSD), Article 74:52, owners and operators of stormwater discharges from construction activities, located in the state of South Dakota are authorized to discharge in accordance with the conditions and requirements set forth herein.

This general permit shall become effective on **November 1, 2023**

General permit coverage for the [PERMITTEE] shall become effective [EFFECTIVE DATE].

This general permit and the authorization to discharge shall expire at midnight, **October 31, 2028.**

Signed this **1st** day of **November, 2023,**

Authorized Permitting Official

Hunter Roberts
Secretary
Department of Agriculture and Natural Resources

Note: *This page will be replaced with a copy containing the assigned permit number and project name once coverage has been authorized.*

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1.0 DEFINITIONS

ARSD – Administrative Rules of South Dakota.

Best Management Practices (**BMPs**) – the schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants from the construction site. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Borrow Areas – the areas where materials are dug for use as fill, either onsite or offsite.

Commencement of Construction Activities – the initial disturbance of soils (or 'breaking ground') associated with clearing, grading, or excavating activities or other construction-related activities (e.g., stockpiling of fill material).

Construction Site – the land or water area where construction activities will occur and where control measures will be installed and maintained. The construction site includes construction support activities, which may be located at a different part of the property from where the primary construction activity will take place, or on a different piece of property altogether. The construction site is often a smaller subset of the lot or parcel within which the project is taking place.

Construction Site Washout – as used in this general permit, refers to any wash waters derived from the cleaning of construction trucks and/or equipment including, but not limited to, concrete, mortar, grout, stucco, form release oils, paints, curing compounds, and other construction materials.

Construction Support Activity – a construction-related activity that specifically supports the construction activity and can include activities associated with concrete or asphalt batch plants, equipment staging yards, materials storage areas, excavated material disposal areas, and borrow areas.

Construction Waste – discarded material including, but not limited to, packaging materials, scrap construction materials, masonry products, timber, steel, pipe, electrical cuttings, plastics, and Styrofoam®.

Control Measures – as used in this general permit, refer to any best management practice or other method, including narrative effluent limits, used to minimize erosion and sedimentation, and thereby prevent or reduce the discharge of pollutants to surface waters of the state.

Corrective Action – as used in this general permit, refers to any action taken to (1) repair, modify, or replace any control measure used at the site; (2) clean up and dispose of spills, releases, or other deposits found on the site; or (3) remedy a permit violation.

Dewatering – the act of draining or pumping rainwater, groundwater, or surface waters from building foundations, vaults, trenches, and other areas of the construction site.

Discharge – the addition of any pollutant or combination of pollutants to surface waters of the state from any point source.

Earth-Disturbing Activities – as used in this general permit, means actions taken to alter the existing vegetation and/or underlying soil of a site.

Effective Operating Condition – as used in this general permit, means a control measure is kept in effective operating condition if it has been implemented and maintained in such a manner that it is working as designed to minimize pollutant discharges.

Final Stabilization – on areas not covered by permanent structures, means either (1) vegetation has been established that provides a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the natural background vegetative cover, (2) permanent non-vegetative stabilization methods have been implemented to provide effective cover for exposed portions of the site, or (3) disturbed portions of a construction site on land used for agricultural purposes must be returned to pre-construction agricultural use.

Historic Property – any building, structure, object, district, area, or site that is significant in the history, architecture, archaeology, paleontology, or culture of the state, its communities or the nation as stated in SDCL 1-19A-2.

Infeasible – as used in this general permit, means not technologically possible or not economically practicable and achievable in light of best industry practices.

Common Plan of Development or Sale – a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. “One plan” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating construction activities may occur on a specific plot.

Minimize – to reduce and/or eliminate to the extent achievable using control measures that are technologically available and economically achievable and practicable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) – a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by the state or a municipality and is designed or used for collecting or conveying stormwater. This definition does not include combined sewers or conveyances that are part of a publicly owned treatment works, as defined by ARSD Sections 74:52:01:01(25), 74:52:01:01(27), and 74:52:01:01 (44).

Municipality – a city, town, county, district, sanitary district, or other public body created by or under state law with jurisdiction over the disposal of sewage, industrial wastes, or other wastes.

Natural Buffer – as used in this general permit, means an area of undisturbed natural cover surrounding surface waters within which construction activities are restricted. Natural cover includes the vegetation, exposed rock, or barren ground that exists prior to commencement of construction activities.

Nonpoint Source – a source of pollution that is not defined as a point source.

Non-Stormwater Discharges – discharges that do not originate from runoff events. They can include, but are not limited to, discharges of process water, air conditioner condensate, non- contact cooling water, vehicle wash water, sanitary wastes, construction washout water, paint wash water, irrigation water, or pipe testing water.

Notice of Intent or **NOI** – the form (electronic or paper) provided by the Secretary required for authorization of coverage under this general permit (Appendix A).

Notice of Termination or **NOT** – the form (electronic or paper) provided by the Secretary required for terminating coverage under this general permit (Appendix B).

Operator – as used in this general permit and in the context of stormwater discharges associated with construction activities means any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

2. The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the general permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the general permit).

The operator, along with the owner, is responsible for ensuring compliance with all conditions of this general permit and with development and implementation of the stormwater pollution prevention plan.

Pesticide – any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pests, or any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

Note: Drugs used to control diseases of humans or animals (such as livestock and pets) are not considered pesticides; such drugs are regulated by the Food and Drug Administration. Fertilizers, nutrients, and other substances used to promote plant survival and health are not considered plant growth regulators and thus are not pesticides. Biological control agents, except for certain microorganisms, are exempted from regulation as pesticides under FIFRA. (Biological control agents include beneficial predators such as birds or ladybugs that eat insect pests, parasitic wasps, fish, etc.)

Point Source – any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, animal feeding operation, or vessel or other floating craft from which pollutants are or may be discharged. Construction sites disturbing one (1) or more acres are point sources. Therefore, any water flowing off the construction sites constitutes a discharge and must be covered by a Surface Water Discharge permit.

Pollutant-Generating Activities – at construction sites, as used in this general permit, means those activities that lead to or could lead to the generation of pollutants, either as a result of earth-disturbance or a related construction support activity. Some of the types of pollutants that are typically found at construction sites are:

1. Sediment;
2. Nutrients;
3. Heavy metals;
4. Pesticides and herbicides;
5. Oil and grease;
6. Bacteria and viruses;
7. Trash, debris, and solids;
8. Treatment polymers; and
9. Any other toxic chemicals.

Prohibited Discharges – as used in this general permit, means discharges that are not allowed under this general permit, see Section 2.3.

Qualified Local Program – a municipal program for stormwater discharges associated with construction sites that has been formally approved by SDDANR to act in lieu of the state program.

Regulated Substance – the compounds designated by the department under SDCLs 23A-27-25, 34A-1-39, 34A-6-1.3(17), 34A-11-9, 34A-12-1 to 34A-12-15, inclusive, 45-6B-70, 45-6C-45, 45-6D-60, and 45-9-68, including pesticides and fertilizers regulated by the SDDANR; the hazardous substances designated by the U.S. EPA pursuant to section 311 of the Federal Water Pollution Control Act and Clean Water Act (33 United States Code sections 1251 to 1387, inclusive), as amended to January 1, 2023; the toxic pollutants designated by Congress or the U.S. EPA pursuant to section 307 of the Toxic Substances Control Act (15 United States Code sections 2601 to 2671, inclusive), as amended to January 1, 2023; the hazardous substances designated by the U.S. EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (42 United States code sections 9601 to 9675, inclusive), as amended to January 1, 2023; and petroleum, petroleum substances, oil, gasoline, kerosene, fuel oil, oil sludge, oil refuse, oil mixed with other wastes, crude oils, substances, or additives to be utilized in the refining or blending of crude petroleum or petroleum stock, and any other oil or petroleum substance. This term does not include sewage and sewage sludge.

Runoff Event – a precipitation event or snowmelt that results in a measurable amount of surface runoff.

SDCL – South Dakota Codified Law

SDDANR – the South Dakota Department of Agriculture and Natural Resources.

Secretary – the Secretary of the SDDANR, or an authorized representative.

Section 303(d) List or 303(d) List – a list of South Dakota's water quality-limited surface waters requiring the development of TMDLs to comply with the Section 303(d) Report is available by viewing the Surface Water Standards Mapping Application located on the sidebar of the following webpage: danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/StormWaterConstruction

Stormwater – means, for the purpose of this general permit, stormwater runoff, snowmelt runoff, or surface runoff.

Stormwater Associated with Construction Activity – means a discharge of pollutants in stormwater to surface waters of the state from areas where construction site or construction support activities occur.

Stormwater Associated with Industrial Activity – means stormwater runoff, snow melt runoff, or surface runoff and drainage from industrial activities as defined in 40 C.F.R. Section 122.26(b)(14) (July 1, 2021).

Stormwater Pollution Prevention Plan (SWPPP) – means a site-specific, written document that, among other things: 1) identifies potential sources of stormwater pollution at the construction site; 2) describes control measures to reduce or eliminate pollutants in stormwater discharges from the construction site; and 3) identifies procedures the owner or operator will implement to comply with the terms and conditions of this general permit. See Section 5.0 for details on the requirements for a SWPPP.

Surface Waters of the State – lakes, ponds, streams, rivers, wetlands, and any other body or accumulation of water on the land surface that is considered to be waters of the state, but not waste treatment systems, including treatment ponds, lagoons, leachate collection ponds, or stormwater retention ponds designed to meet the requirements of the federal Clean Water Act.

Surface Water Quality Standards – water quality standards adopted pursuant to SDCLs 34A-2-10 and 34A-2-11 or actual existing beneficial uses, whichever is higher. If waters have more than one designated beneficial use and criteria are established for a parameter that is common to two or more uses, such as pH, the more restrictive criterion for the common parameter applies.

Temporary Stabilization – means a condition where exposed soils or disturbed areas are provided a temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb the area.

Total Maximum Daily Load (TMDL) – means the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources, and natural background. TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures.

Upset – an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

U.S. EPA – the United States Environmental Protection Agency.

Waters of the State – all waters within the jurisdiction of this state, including all streams, lakes, ponds, impounding reservoirs, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, situated wholly or partly within or bordering upon the state.

Workday – means, for the purpose of this general permit, a calendar day on which construction activities will take place.

2.0 COVERAGE UNDER THIS GENERAL PERMIT

2.1 Eligibility Requirements

This general permit shall apply to stormwater discharges from construction sites located within the state of South Dakota. Only those projects that meet all of the following eligibility requirements may be covered under this general permit:

1. You are the owner or operator of the construction project for which discharge will be covered under this general permit. The owner must obtain coverage under this general permit and all operators at the site must comply with the permit conditions.

2. Your project:

    a. Will disturb one (1) or more acres of land; or

    b. Will disturb less than one (1) acre of land but is part of a common plan of development or sale that will ultimately disturb one (1) or more acres of land; or

    c. Is less than one (1) acre, but has construction support activities required to be covered and the total area exceeds one (1) or more acres of land; or

    d. Has been designated by the Secretary or the U.S. EPA as needing a permit.

3. You have complied with all applicable requirements imposed by the applicable county, city, or other local government entities.

4. If your project will encroach, damage, or destroy a historic property included in the national register of historic places or the state register of historic places located in South Dakota, you must have approval from the South Dakota State Historic Preservation Office prior to submitting the NOI. You must attach an approval letter from the State Historic Preservation Office with the NOI.

2.2 Discharges Authorized

The following discharges shall be authorized under this general permit:

1. Stormwater discharges from projects detailed in Section 2.1.2.

2. Stormwater discharges from construction support activities provided:

    a. The support activity is directly related to the construction site required to have permit coverage;

    b. The support activity does not continue to operate beyond the completion of the construction activity at the project it supports. If the support activity continues past the initial permitted project, you must obtain a separate permit for those activities;

    c. The support activity is included in the SWPPP as required by Section 5.0; and

d. Control measures are implemented for discharges from the support activity area.

3. Stormwater construction discharges combined with discharges from an industrial source, as long as:

   a. The industrial source is located on the same site as your construction activity; and

   b. You may not combine stormwater discharges from industrial and construction activities unless each source is covered by its own permit or are not required to obtain permit coverage.

4. Discharges to waters for which there is a TMDL allocation for sediment, suspended solids, and turbidity are covered only if you develop a SWPPP that is consistent with the assumptions, allocations, and requirements in the approved TMDL, as detailed in Section 5.2. If a specific numeric wasteload allocation has been established that would apply to discharges from construction activity, the permittee must incorporate that allocation into the SWPPP and implement necessary steps to meet that allocation.

2.3 Discharges Not Authorized

The following discharges are not authorized by this general permit:

1. **Post-Construction Discharges**. This general permit is not designed to address post-construction discharges after you have completed construction activities and achieved final stabilization at the site.

2. **Discharges Mixed with Non-Stormwater**. This general permit does not authorize discharges of non-stormwater.

3. **Discharges of Fill Material**. This general permit does not authorize you to discharge fill material into surface waters of the state. You are required to obtain a Section 404 federal Clean Water Act permit from the U.S. Army Corps of Engineers.

4. **Discharges Threatening Water Quality**. This general permit does not authorize your discharge from a construction site if the discharge will cause, or have the reasonable potential to cause or contribute to, violations of Surface Water Quality Standards. In such cases, the Secretary may deny you coverage under the general permit or require you to obtain an individual Surface Water Discharge permit.

5. **Discharges Threatening Endangered Species**. This general permit does not authorize your discharge from a construction site if the discharge will not ensure the protection of species that are federally listed as endangered under the federal Endangered Species Act.

6. **Discharges of Regulated Substances**. This general permit does not authorize you to discharge regulated substances, hazardous substances, or oil resulting from onsite spills. You are subject to the federal reporting requirements of 40 CFR Part 110, Part 117, and Part 302 relating to spills or other releases of oils or hazardous substances. You must report spills in excess of the reportable quantities as required in Section 7.1.

2.4 Requesting Permit Coverage

To request coverage under this general permit, you must submit a complete and accurate NOI (Appendix A) to SDDANR at least **15 calendar days** prior to the commencement of construction activities at the site in accordance with Section 2.7. ***The NOI must be signed by the owner of the project where construction activities will occur.***

1. You must identify the person(s) responsible for day-to-day operations at the construction site. A Contractor Authorization Form (Appendix C) must be submitted to SDDANR as soon as a contractor is identified. This form is required to be submitted by all entities responsible for earthwork activities or installation and maintenance of stormwater controls.

2. You are not prohibited from submitting a late NOI. When you submit a late NOI, your authorization to discharge is only for discharges that occur after SDDANR grants coverage. SDDANR reserves the right to take appropriate enforcement action for any unpermitted discharges that may have occurred between the commencement of construction activities and the time authorization for your discharge is granted.

3. SDDANR will not process incomplete NOIs. Additional information will be requested before a determination to grant coverage is made.

4. SDDANR will review each complete NOI submission and determine whether to grant or reject coverage.

5. SDDANR will notify you once permit coverage is approved. This notification will be delivered electronically.

2.5 Transferring Permit Coverage

If a new owner purchases a construction site or a portion of the site covered under this general permit, you are responsible for the following:

1. You must notify SDDANR if the general permit is to be transferred to another person (Appendix E) in accordance with Section 2.7. The Secretary may require modification or revocation and reissuance of the permit to change the name of the permittee(s) and incorporate other necessary requirements;

2. You must notify the new owner(s) of the general permit requirements and communicate the importance of achieving final stabilization on the site.

2.6 Terminating Permit Coverage

Until the Secretary terminates your coverage under this general permit, you are required to comply with all conditions and effluent limits in this general permit. To terminate coverage, you are required to submit, in accordance with Section 2.7, a complete and accurate NOT (Appendix B) that is signed in accordance with Section 7.4. You must submit the NOT within **30 calendar days** of meeting condition 1 or 2 below:

1. You have completed all earth-disturbing activities at your site, including, all construction support activities covered by this general permit, and you have met all the following requirements:

    a. You have met the stabilization requirements listed in Section 3.18 and have reached final stabilization for any areas disturbed during construction and over which you had control during the construction activities;

    b. You have removed and properly disposed of all temporary construction materials, waste and waste handling devices, and have removed all equipment and vehicles that were used during construction, unless intended for long-term use on the site following termination of your general permit coverage;

    c. You have removed and properly disposed of all temporary control measures of which you installed and maintained during construction, except those that are intended for long-term or post construction use following termination of your general permit coverage; and,

    d. You have removed all potential pollutants and pollutant-generating activities associated with construction.

2. You have obtained coverage under an individual or alternative general permit that addresses the discharges from the construction site.

2.7 Electronic Reporting Requirements

On October 22, 2015, the U.S. EPA published in the federal register a rule that has made electronic reporting of permit and compliance monitoring information mandatory for all National Pollution Discharge Elimination System (NPDES) permits. These are referred to as Surface Water Discharge permits in South Dakota. The final rule became effective December 21, 2015.

Phase II of the final rule requires that authorized state NPDES programs begin electronically collecting, managing, and sharing construction stormwater permitting information by December 21, 2025. This includes general permit reports such as NOIs, NOTs, and all other remaining NPDES program forms and reports.

SDDANR is approved to accept electronic submissions via U.S. EPA's NPDES eReporting Tool (NeT).

1. You must use NeT to electronically submit forms and documents required under this general permit to SDDANR. To access NeT, go to https://cdx.epa.gov/cdx.

2. **Exception:** If you are unable to meet the electronic reporting requirements due to extenuating circumstances, such as technology availability, you may apply for a temporary electronic reporting waiver through SDDANR. If the waiver is approved, the electronic reporting requirement will be waived according to SDDANR's procedures.

2.8 Requiring an Individual Permit or an Alternative General Permit

SDDANR may either deny coverage or require you to apply for an individual Surface Water Discharge permit or an alternative general permit. In considering whether SDDANR denies coverage or requires an alternative permit, the following will be taken into consideration:

1. You cannot comply with the conditions of this general permit;

2. There has been a change in the availability of demonstrated technologies or practices for the control or abatement of pollutants applicable to construction sites;

3. Effluent limitation guidelines are promulgated or revised for point sources covered by this general permit;

4. A water quality management plan is approved containing requirements applicable to your construction site;

5. Your discharge is a significant contributor of pollution to surface waters of the state or it presents a health hazard; or

6. You are discharging to an impaired water body and the BMPs are not sufficient to implement the assigned wasteload allocations in a TMDL approved by the U.S. EPA.

2.9 Continuation of Coverage for Expired General Permit

If you wish to continue to be covered by this general permit after its expiration date, you must submit a Notice of Intent for Reauthorization (Appendix E) in accordance with Section 2.7. An expired general permit continues in full force and effect until a new general permit is issued. You will continue to have coverage under the current general permit until a new general permit is issued. Upon the effective date of this general permit, the Secretary will terminate the existing general permit.

1. If you are authorized under the existing general permit and you have submitted the Notice of Intent for Reauthorization Form prior to the permit expiration date, your coverage will automatically continue under the new general permit. Once the reauthorization has been submitted and approved, you will receive notice electronically of your continued coverage.

2. Projects covered under the 2018 general permit must be in compliance with the conditions in the current general permit within **three (3) months** from the effective date of this general permit. You must maintain compliance with all requirements in the 2018 general permit during the grace period. SDDANR may grant an extension on a case-by-case basis if necessary. To obtain such an extension, you must request it from SDDANR in writing.

2.10 Requirement to Post Notice of Your General Permit Coverage

You must post a sign or other notice of your permit coverage at a safe, publicly accessible location in close proximity to the construction site. The notice must be located so it is visible from the public road that is nearest to the active part of the construction site, and it must use a font large enough to be readily viewed from a public right-of-way. At a minimum, the notice must include:

1. The general permit number provided in your electronic approval.

2. The contact name and phone number for obtaining additional project information.

2.11 Property Rights

1. The Secretary's issuance of this general permit, adoption of design criteria, and approval of plans and specifications, does not convey any property rights of any sort, any exclusive privileges, any authorization to damage, injure, or use any private property, any authority to invade personal rights, any authority to violate federal, state, or local laws or regulations, or any taking, condemnation, or use of eminent domain against any property owned by third parties.

2. The State does not warrant that your compliance with this general permit, design criteria, approved plans and specifications, and operation under this general permit, will not cause damage, injury or use of private property, an invasion of personal rights, or violation of federal, state, or local laws or regulations. You are solely and severally liable for all damage, injury, or use of private property, invasion of personal rights, infringement of federal, state, or local laws and regulations, or taking or condemnation of property owned by third parties, that may result from actions taken under this general permit.

2.12 Reopener Provisions

SDDANR may reopen and modify this general permit to include appropriate conditions (following proper administrative procedures) if state or federal statutes or regulations change.

2.13 Severability

If any portion of the general permit is found to be void or is challenged, the remaining permit requirements shall remain valid and enforceable.

2.14 Permit Actions

This general permit may be modified, revoked and reissued, or terminated by the Secretary for cause. Any request for such changes does not stay any permit condition.

3.0 EFFLUENT LIMITS

You are required to comply with the following effluent limits for discharges from your construction site and/or from construction support activities representing the degree of effluent reduction attainable through the best practicable control technology currently available to minimize the pollutants present in the discharges. In order to achieve compliance with the conditions of this permit, you are required to address the following effluent limits by developing a SWPPP as required in Section 5.0. If you determine any of the following limits are infeasible, you must document your rationale in your SWPPP.

Stormwater discharges regulated under this general permit that may discharged to a surface water with an approved TMDL for sediment, total suspended solids, or turbidity must be consistent with the TMDL and any associated wasteload allocation for construction or stormwater related discharges. In most cases compliance with this permit will be considered adequate, unless otherwise notified by the Secretary. The Secretary may require an individual permit, as referenced in Section 2.8, should compliance with this general permit be deemed insufficient to meet relevant wasteload allocations.

3.1 Proper Operation and Maintenance

You must properly operate and maintain all sediment and erosion controls, BMPs, treatment systems, and any other control(s) used to achieve compliance with the conditions of this general permit in accordance with manufacturer's specifications, good engineering practices, and design specifications of the SWPPP.

3.2 Erosion and Sediment Control Requirements

1. You must design, install, and maintain effective erosion and sediment controls to minimize soil erosion and the discharge of pollutants during earth-disturbing activities. The stormwater controls must be designed to function properly and withstand a 2-year, 24-hour precipitation event. See Appendix F for instructions to determine your construction site's precipitation for a 2-year, 24-hour event.

2. You must account for the following factors when designing your erosion and sediment controls:

    a. The nature of resulting stormwater runoff and run-on at the construction site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features. Controls must be able to control stormwater volume, velocity, and flow rates from a 2-year, 24-hour precipitation event across the construction site.

    b. Anticipated soil characteristics at the construction site, including soil type and range of particle sizes.

3.3 Installation Requirements

1. You must complete installation of down gradient erosion and sediment controls prior to the commencement of any land disturbing activities in order to control discharges.

2. You must install all other control measures planned for each phase of the project as described in your SWPPP as soon as conditions on the site allow.

3. You must install all control measures using good engineering practices and follow the manufacturer's specifications. Any departures from the manufacturer's specifications must reflect good engineering practices and must be explained in your SWPPP.

3.4 Perimeter Controls

You must have effective down gradient sediment controls, and controls for any side slope boundaries deemed appropriate for individual site conditions, to minimize pollutant discharges from the construction site.

3.5 Sediment Basins

If you use a sediment basin to control the discharge of sediment from the site, you must meet the requirements listed below.

1. Sediment basins must be designed, constructed, and operated in accordance with the requirements found in your local city or county ordinances.

2. Outlet structures must withdraw water from the surface of the sediment basin or impoundment to allow for proper sediment removal in the pond.

3. Erosion controls and velocity dissipation devices must be used to prevent erosion within the sediment basin as well as at inlets and outlets from the basin.

4. Sediment basins must be situated outside of surface waters and any natural buffers established under Section 3.10. The basins must be designed to avoid collecting water from wetlands and other water bodies.

3.6 Minimize Sediment Track-Out

You must minimize the track-out of sediment from the construction site where vehicles leave the site. To comply with this requirement, you must:

1. Restrict vehicle use to properly designated access points.

2. Use appropriate stabilization techniques at all construction site access point(s) so sediment removal occurs prior to vehicle exit.

3. Where sediment has been tracked out from your site onto offsite streets, other paved areas, and/or sidewalks, remove the deposited sediment by the end of the same workday in which the track-out occurs.

    a. You must remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal.

    b. You are prohibited from hosing or sweeping tracked-out sediment into storm drain inlets, surface waters of the state, or any stormwater conveyance.

3.7 Remove Offsite Accumulation

If sediment escapes the construction site, you must initiate removal of the offsite accumulations to minimize impacts by the end of the same workday. You must revise your SWPPP and implement controls to minimize further offsite accumulation.

3.8 Minimize Dust

You must minimize the generation of dust at the construction site to avoid pollutants from being deposited into surface waters of the state. This can be accomplished through the appropriate application of water or other dust suppression techniques.

3.9 Minimize Run-On

You must minimize run-on to your construction site.

3.10 Provide Natural Buffers

You must comply with the following requirements if disturbed portions of the construction site are within fifty (50) feet of 1) a lake assigned immersion recreation or limited contact recreational beneficial uses in ARSD 74:51:02:02 and listed in ARSD 74:51:02:04; or 2) a river or stream assigned any of the warmwater or coldwater fish life propagation beneficial uses in ARSD 74:51:03:02 and listed in ARSD 74:51:03:04 to 74:51:03:27, inclusive.

1. Provide and maintain a 50-foot undisturbed natural buffer.

    a. When the natural buffer between the disturbed area(s) and surface waters of the state is less than fifty (50) feet, you must provide a combination of undisturbed buffer and supplemental erosion and sediment controls that achieves the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

    b. When no undisturbed buffer can be provided between the disturbed area(s) and surface waters of the state, you must provide erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

    c. Document in your SWPPP how any undisturbed natural buffer and the supplemented erosion and sediment controls achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

2. Direct surface runoff to vegetated areas and maximize stormwater infiltration to reduce pollutant discharges.

3. Delineate and clearly mark all natural buffer areas with flags, tape, or other similar marking devices. No construction or other activity should occur in the delineated buffer area.

4. **Exception:** You are not required to maintain a 50-foot undisturbed natural buffer or install additional controls if there is no discharge of stormwater to surface waters of the state through the area between your site and the surface waters. This includes situations where you have implemented control measures, such as a berm or other barrier, to prevent such discharges.

3.11 Preserve Topsoil

You must preserve native topsoil on your site, unless infeasible. Preserving topsoil is not required where the intended function of a specific area of the site dictates that the topsoil be disturbed or removed.

3.12 Minimize Steep Slope Disturbance

You must minimize the disturbance of slopes that are greater than a three horizontal to one vertical (3:1) slope, unless infeasible.

3.13 Protect Storm Drain Inlets

1. You must protect all storm drain inlets that receive stormwater flows from the construction site by using appropriate BMPs during construction to minimize the discharge of pollutants from the site.

2. You must maintain the inlet protection until you have permanently stabilized all sources that have the potential to discharge pollutants to the inlet. If local officials require you to remove the inlet controls during the winter, you must install alternative controls to prevent sediment from entering the storm drain inlet.

3.14 Erosive Velocity Control

1. You must use erosion controls and velocity dissipation devices where necessary along the length of stormwater conveyance channels and outlets to minimize erosion of the channel, adjacent stream bank, slope, and downstream waters.

2. You must provide energy dissipation BMPs prior to connecting pipe or culvert outlets to surface water.

3. You must control the stormwater discharges, including both peak flowrates and total stormwater volume, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points.

3.15 Minimize Soil Compaction

In areas of your site where final vegetative stabilization or infiltration will occur, you must either:

1. Restrict vehicle and equipment use in these locations to avoid soil compaction; or

2. Condition areas of compacted soil prior to seeding or planting to support vegetation growth.

3. **Exception:** You are not required to minimize soil compaction where the intended function of a specific area of the site dictates that soil be compacted.

3.16 Minimize Exposed Soil

You must schedule and sequence soil disturbing and stabilizing activities to minimize the amount and duration of soil exposure to erosion and sedimentation by wind, rain, surface runoff, and vehicle tracking. Consider factors such as high precipitation seasons when scheduling soil disturbing activities.

3.17 Protect Stockpiles

For any stockpiles or land clearing debris you must:

1. Locate the stockpiles and debris outside of any natural buffers established as required in Section 3.10 and away from any stormwater conveyances, drain inlets, and areas where stormwater flow is concentrated;

2. Protect the stockpiles and debris from contact with stormwater run-on by using temporary sediment controls, berms, or other BMPs;

3. Properly maintain and position stockpiles to minimize dust generation and wind transport of sediment; and

4. You are prohibited from placing stockpiles in surface waters of the state.

5. Minimize stormwater runoff by properly positioning stockpiles and debris or installing effective sediment controls.

3.18 Stabilization Requirements

You are required to stabilize exposed portions of your site in accordance with the requirements of this section. You are responsible for implementing winter stabilization methods during frozen ground conditions if the site was not stabilized prior to the ground freezing.

1. **Deadline to Initiate Stabilization**. You must begin soil stabilization measures by the following workday whenever earth-disturbing activities have permanently or temporarily ceased on any portion of the site.

a. Earth-disturbing activities have permanently ceased when you complete clearing, grading, and excavation within any area of your site that will not include permanent structures.

b. Earth-disturbing activities have temporarily ceased when you cease clearing, grading, and excavation within any area for a period of at least **14 calendar days** but will resume such activities in the future.

2. **Deadline to Complete Temporary Stabilization**. As soon as practicable, but no later than **14 calendar days** after initiating soil stabilization measures, you are required to have completed:

   a. All activities necessary to initially seed or plant the area to be stabilized for vegetative stabilization practices.

   b. The installation or application of all non-vegetative measures.

   c. As soon as practicable after seeding or planting, select, design, and install non-vegetative erosion controls (e.g., mulch or rolled erosion control products) to prevent erosion on the seeded or planted areas while vegetation establishes.

3. **Criteria for Final Stabilization**. To be considered as having reached final stabilization as defined in Section 1.0, you must meet the criteria below based on the type of cover you are using.

   a. **Vegetative Stabilization**. If you are seeding or planting vegetation to stabilize the site, you must meet the following requirements:

      i. Provide 70% or more of the density of coverage that was provided by vegetation prior to commencement of construction activities;

      ii. Provide uniform perennial vegetative cover; and,

      iii. Minimize the presence of invasive species.

   b. **Non-Vegetative Stabilization**. If you are using non-vegetative controls for final stabilization at your site, the controls must provide effective cover to properly stabilize the exposed portions of your site.

   c. **Return to Pre-Construction Agricultural Land Use**. For construction projects on land used for agricultural purposes, final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were not previously used for agricultural purposes, such as buffer strips immediately next to surface waters and areas not being returned to pre-agricultural use must meet the final stabilization criteria listed in (a) and/or (b) above.

4. **Site Specific Stabilization Requirements**. If you are constructing in the specific areas listed below, you must complete the following stabilization requirements as soon as practicable, but no later than the deadlines listed below after initiating soil stabilization measures:

    a. Stream diversions or drainage ditches that divert water around or drain water from your construction site must be stabilized with appropriate controls prior to connection with any surface water.

    b. For stockpiles that will be unused for 14 or more days, provide cover or appropriate temporary stabilization consistent with Section 3.18.

3.19 Maintenance Requirements

1. **Effective Operating Condition**. You must ensure that all erosion and sediment controls remain in effective operating condition until final stabilization is complete. At a minimum, you must:

    a. Remove sediment from sedimentation basins when the design capacity has been reduced by 50% or more.

    b. Remove sediment from sediment controls before the deposit reaches 50% of the above-ground height of the control.

    c. Repair vegetative buffers if they become silt-covered, contain rills, or are otherwise rendered ineffective.

    d. You must repair and stabilize eroded areas by the end of the same workday they are identified. If repair is infeasible, you must implement alternative control measures.

    e. Clean inlet protection devices when sediment accumulates, when the filter becomes clogged, or when performance is compromised.

    f. Ensure that all controls remain in effective operating condition and are protected from activities that would reduce their effectiveness.

    g. All nonfunctional BMPs must be repaired, replaced, maintained, or supplemented with functional BMPs. If a nonfunctioning BMP is supplemented, the nonfunctional BMP shall be removed. The change in BMPs shall be noted in the SWPPP in accordance with Section 5.5.1.b.

2. **Deadline for Maintenance**. If you find a problem or if your inspections identify that control measures are not operating effectively, you must make the necessary repairs or modifications as follows:

a. If you discover a problem that does not require repair or replacement, you must initiate work to fix the problem on the same day. If the problem is identified at a time in the workday when it is too late to complete the corrective actions, you must initiate work to fix the problem on the following workday or before the next anticipated runoff event, whichever comes first.

b. If you need to install new erosion or sediment controls or need to complete repairs, you must complete the work before the next anticipated runoff event or by no later than seven (7) calendar days from the time the problem is discovered, whichever comes first.

c. You must modify your SWPPP within seven (7) calendar days of completing the maintenance. The maintenance updates shall be noted in the SWPPP in accordance with Section 5.5.1.b.

3.20 Pollution Prevention Procedures

You must design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants from the activities listed below. Spills must be reported as required in Section 7.1 of this general permit.

1. **Prohibited Discharges**. You are prohibited from discharging the following from your construction site:

   a. Wastewater from washout and cleanout of concrete, stucco, paint, form release oils, curing compounds, and other construction materials.

   b. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.

   c. Detergents, soaps, or solvents used in vehicle and equipment washing.

   d. Toxic or hazardous substances from a spill or other release.

   e. Waste, garbage, floatable debris, construction debris, and sanitary waste.

2. **Fueling and Maintenance of Equipment and Vehicles**. If you fuel or maintain equipment and vehicles at your site, you must minimize the discharge of spilled or leaked materials from the area where these activities take place.

3. **Washing of Equipment and Vehicles**. You must provide an effective means of minimizing the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of washing. The washing must be limited to a defined area of the site and must be properly disposed.

4. **Management of Construction Products, Chemicals, Materials, and Wastes**. You must properly store, handle, and dispose of any construction products and materials, chemicals, landscape materials, and wastes in order to minimize the exposure to stormwater. Products or wastes that are either not a source of contamination to

stormwater or are designed to be exposed to stormwater are not held to this requirement. Requirements are as follows:

a. You must cover or otherwise protect any materials that have the potential to leach pollutants in order to minimize contact with stormwater and prevent the discharge of pollutants.

b. Clean up spills by the end of the same workday in which the spill occurred, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or continuation of an ongoing discharge.

c. For registered pesticides and fertilizers, you must comply with all application and disposal requirements included on the label. Pesticides and fertilizers must be stored under cover or other effective means designed to minimize contact with stormwater. You must document any departures from the manufacturer's specifications for applying fertilizers and pesticides.

d. Store all diesel fuel, oil, hydraulic fluids, and any other petroleum or chemical products in water-tight containers.

e. Hazardous or toxic wastes that may be present at construction sites include, but are not limited to, paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, acids, and alkaline materials. For these materials and wastes, you must:

    i. Separate hazardous or toxic wastes and materials from construction and domestic waste.

    ii. Store hazardous or toxic wastes and materials in sealed containers and provide secondary containment as applicable. These containers must be constructed of suitable materials to prevent leakage and corrosion. These containers must be labeled in accordance with the applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, or local requirements.

    iii. Dispose of hazardous or toxic wastes in accordance with the manufacturer's recommended method of disposal and in compliance with federal, state, and local requirements.

f. You must provide effective containment for all liquid and solid wastes generated by washout operations including, but not limited to, concrete, stucco, paint, form release oils, curing compounds, and other construction materials related to the construction activity. For these materials and wastes, you must comply with the following requirements:

    i. Designate areas to be used for washout and cleanout activities. The containment must be designed so that it does not result in runoff from washout operations or during runoff events;

ii. Install signs adjacent to each washout facility directing site personnel to use the proper facilities for concrete disposal and other washout wastes;

iii. Direct all wash water into a leak-proof container or leak-proof pit;

iv. Do not dump liquid wastes in the storm sewers; and,

v. Clean up and properly dispose of any accumulated wastes in designated waste containers.

g. You must provide proper waste disposal receptacles of sufficient size and number to handle construction wastes including, but not limited to, packaging materials, scrap construction materials, masonry products, timber, pipe, electrical cuttings, plastics, Styrofoam®, concrete, and other trash or building materials.

i. For sanitary waste, you must position portable toilets so they are secure and will not be tipped or knocked over. You must properly remove and dispose of wastes from the portable toilets.

3.21 Construction Dewatering

You are prohibited from discharging from dewatering activities, including discharges from dewatering of trenches and excavation, unless the discharges are managed by the following controls:

1. You shall not discharge toxic pollutants in toxic amounts.

2. Your discharge shall not impart a visible film or sheen to the surface of the receiving water or adjoining shoreline.

3. Your discharge shall not contain visible pollutants. You must visually monitor the discharge for suspended solids. If you observe suspended solids in the discharge, you must implement the following requirements:

   a. You must install additional BMPs and update your SWPPP to reduce the visible solids.

   b. You must sample the dewatering discharge for total suspended solids on a daily basis until there is no longer a discharge of visible solids. The samples must be analyzed in accordance with 40 CFR 136. If the total suspended solids value exceeds 53 mg/L in any sample or measurement, you must cease the dewatering discharge to surface waters of the state until you can demonstrate the additional BMPs are sufficient to eliminate the visible pollutants. You must also document this in your SWPPP. The results of this sampling must be maintained in your SWPPP in accordance with Section 7.3.4.

4. You must use BMPs to minimize or prevent stream channel scouring or erosion caused by dewatering discharges.

5. You cannot add chemicals to the discharge without prior approval from SDDANR.

6. You must obtain a Temporary Water Use Permit. Contact the SDDANR Water Rights Program at (605) 773-3352 for more information.

3.22 Prohibition of Bypasses and Emergency Discharges

1. You may allow bypasses to occur that do not result in a discharge and will not result in a violation of the effluent limits, but only if for essential maintenance to ensure efficient operation.

2. An emergency discharge or bypass, other than that described in Paragraph 1 above, is prohibited and the Secretary may take enforcement action against you, unless:

    a. The emergency discharge or bypass was unavoidable to prevent loss of life, threat to public health, personal injury, or severe property damage;

    b. There were no feasible alternatives to the emergency discharge or bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent an emergency discharge or bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

    c. You notified SDDANR of the need for an anticipated bypass as required in Section 7.7.

3. The Secretary may approve an emergency discharge or bypass after considering its adverse effects if the Secretary determines that it will meet the three conditions listed above in Paragraph 2.

4. If a bypass or emergency discharge occurs or is expected to occur, you must take appropriate measures to minimize the discharge of pollutants. Such measures may include the closing of facilities that contribute pollutants to the stormwater runoff until the discharge is terminated.

4.0 INSPECTION REQUIREMENTS

You are required to conduct site inspections to determine the effectiveness of your control measures and your compliance with the conditions of the general permit.

4.1 Person(s) Responsible for Inspecting the Site

The person(s) inspecting your site may be a member of your staff or a third party you hire to conduct the inspections. You are responsible for ensuring the person who conducts the inspection is knowledgeable in the principles and practice of erosion and sediment controls and pollution, possesses the skills to assess conditions at the site that could impact stormwater quality, and is able to assess the effectiveness of any control measures selected and installed to meet the requirements of the general permit.

4.2 Frequency of Inspections

At a minimum, you must conduct a site inspection at the following frequencies:

1. Once every 7 calendar days; or

2. Once every 14 calendar days **and** within 24 hours of precipitation that exceeds 0.25 inches or snowmelt that generates runoff. You must keep a properly maintained rain gauge on your site.

4.3 Reduction of Inspection Frequency

You may reduce your inspection frequency from the requirements above under the following circumstances. You must document the beginning and ending dates of these periods in your inspection records.

1. **Partial Final Stabilization**. You may reduce the frequency of inspections to once per month on any portion of your site where you have reached final stabilization in accordance with Section 3.18.3. If construction activity resumes in an area where inspections were reduced, you must increase the frequency as required in Section 4.2.

2. **Frozen Conditions**. If you are suspending earth-disturbing activities due to frozen conditions and all disturbed areas of the site have been temporarily or permanently stabilized as required in Section 3.18, you shall conduct inspections at least once per month. You must resume weekly inspections by no later than March 1st of each year until your site is permanently stabilized and you have submitted a NOT in accordance with Section 2.6.

4.4 Areas That Need to Be Inspected

During your site inspections you must, at a minimum, inspect the following areas:

1. Verify that the required general permit information is posted in accordance with Section 2.10;

2. All areas that have been cleared, graded, or excavated, and have not yet reached final stabilization;

3. All sediment and erosion control measures and BMPs, including inlet protection;

4. Vegetated buffers;

5. Stockpiles, chemical and fuel storage, fertilizer and pesticide storage, and other material, waste, borrow, and/or equipment storage and maintenance areas;

6. All areas where stormwater typically flows within the site, including drainage ways designed to divert, convey, and/or treat stormwater;

7. All points of discharge from the site including surface waters, drainage ditches, and conveyance systems; and,

8. All dewatering activities at the site.

9. **Exception:** You are not required to inspect areas that, at the time of the inspection, are unsafe for your inspection personnel. A detailed description of the situation must be documented in your inspection records explaining the reason the site conditions prevented the inspection.

4.5 Requirements for Inspections

During your site inspections you must, at a minimum:

1. Check whether all erosion and sediment controls and BMPs are implemented and functioning to minimize pollutant discharges. Determine if you need to replace, repair, or maintain any controls.

2. Check for spills, leaks, or other accumulation of pollutants on the site, or for the presence of conditions that could lead to spills, leaks, or other accumulations of pollutants on site. Determine if you need to install additional controls or take corrective actions to prevent the discharge of these pollutants.

3. Determine if site conditions have changed and if current controls are still effective in controlling pollutants from leaving your site. Identify any locations where new or modified control measures are necessary.

4. Check for signs of erosion, scour, and sediment deposits that have occurred on or off the construction site:

    a. Inspect the discharge points and, where applicable, the banks of any surface waters of the state flowing within your property boundaries or immediately adjacent to your property.

    b. Identify areas where you need to correct erosion and remove sediment.

c. Determine if you need controls to reduce the velocity of the discharge or prevent further erosion and sedimentation.

5. If a discharge is occurring during your inspection, you are required to:

   a. Identify all points of the property where there is a discharge;

   b. Observe and document in accordance with Section 7.3.4 the visual quality of the stormwater discharge and note the characteristics of the discharge, including color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollutants; and

   c. Document whether your control measures are operating effectively. Describe any controls that are not clearly operating as intended or are in need of maintenance.

6. Identify all incidents of noncompliance that you observe.

7. Based on the results of your inspection, you must initiate corrective action(s) where needed.

4.6 Inspection Report

You must complete an inspection report in conjunction with each site inspection.

1. Each inspection report must be maintained in accordance with the requirements in Section 7.3 and must include the following information:

   a. Date and time of the inspection;

   b. Names and titles of the personnel conducting the inspection;

   c. Date and amount of most recent precipitation event, as well as if runoff was flowing onsite and/or offsite at the time of the inspection;

   d. A summary of your inspection findings, covering, at a minimum, the observations you made as required in Sections 4.4. and 4.5;

   e. Specific locations where maintenance, additional BMPs, cleanup, or corrective action is needed;

   f. The results of the total suspended solids levels in any dewatering discharge, as required by Section 3.21; and

   g. A summary of any corrective actions taken in response to the inspection findings, including any changes made to the SWPPP.

2. If you have determined it is unsafe to inspect a portion of your site, you must provide a detailed description of the situation explaining the reason the site conditions prevented the inspection. You must include the location that was unsafe for inspection.

3. If an inspection does not identify any incidents of noncompliance, you must include a statement in the report that the site is in compliance with the SWPPP and the general permit.

4. You must sign and certify each inspection report in accordance with the signatory requirements found in Section 7.4.

5.0 STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

You must develop a SWPPP to be covered under this general permit. Stormwater management documents developed under other regulatory programs may be included or incorporated by reference in the SWPPP, or used in whole as a SWPPP if the document meets the requirements of this section.

5.1 SWPPP Deadlines

1. You must develop and implement the SWPPP **prior** to commencement of construction activities.

   Note: If you were covered under the 2018 general permit and reauthorized under this general permit, you must update your SWPPP to comply with the conditions of this general permit within **three (3) months** from the effective date of this general permit.

2. You must implement and maintain the SWPPP for any construction activity requiring this general permit until final stabilization is reached as required in Section 3.18.3.

5.2 TMDL

For projects that discharge stormwater to a water body listed as impaired under section 303(d) of the Federal Clean Water Act due to sediment, suspended solids, or turbidity, you must identify the water body and impairment in the SWPPP. Your SWPPP must describe and conform to any wasteload allocation for the water body as required in Section 2.2.4.

5.3 SWPPP Contents

You must develop your SWPPP to ensure compliance with the effluent limits in Section 3.0. Your SWPPP must include the following information, at a minimum:

1. **Personnel**. Your SWPPP must identify those person(s), by name or position, who are knowledgeable and experienced in the application of erosion and sediment control BMPs, and who are responsible for the development and implementation of any portion of the SWPPP, for any later modifications to the SWPPP, and for compliance with the requirements of this general permit.

2. **Staff Training**. The SWPPP shall outline how employees and responsible parties shall be trained on the implementation of the SWPPP. Training must be provided at least annually, as new employees or responsible parties are hired, or as necessary to ensure compliance with the SWPPP and this general permit. Employees and responsible parties include individuals who are responsible for conducting inspections or for the design, installation, maintenance, or repair of stormwater controls.

3. **Description of Construction Activities**. Your SWPPP must include a narrative description of the nature of your construction activities, including the following:

a. A description of the overall project and type of construction activities to occur on the site and a description of the final completed project;

b. The total size of the project and total area expected to be disturbed by construction activities;

c. The maximum area expected to be disturbed at any one time;

d. Description of the existing vegetation at the site and an estimate of the percent of vegetative ground cover;

e. A description of the soil within the disturbed areas;

f. The name of the surface waters or MS4 at or near the disturbed area that could potentially receive discharges from the project site;

g. Any construction support activity areas; and,

h. The intended sequence and estimated dates of construction activity for the following:

   i. Implementation of BMPs, including when they will be operational and an explanation of how you will ensure the control measures are installed by the time each phase of earth-disturbing activity begins.

   ii. Commencement and duration of earth-disturbing activities, including clearing and grubbing, mass grading, site preparation (i.e., excavating, cutting, and filling), final grading, and creation of soil and vegetation stockpiles requiring stabilization.

   iii. Cessation, temporary or permanent, of construction activities on the site or in designated portions of the site.

4. **Site Map**. You must include a legible site map depicting the following features and boundaries of the project:

a. Pre-construction site conditions, including existing vegetative and non-vegetative cover (e.g. – forest, pasture, pavement, structures, etc.);

b. Locations where earth-disturbing activities will occur, noting any phasing of construction activities;

c. Approximate slopes before and after major grading activities. Note areas with a slope greater than three horizontal to one vertical (3:1);

d. Topography of the site;

e. Drainage patterns of stormwater and authorized non-stormwater flows from the site property before and after major grading activities. Mark the flow direction with arrows on the map;

f. Locations and names, where appropriate, of all surface waters of the state that exist within or in the immediate vicinity of the site and could potentially receive discharges from the project site;

g. Locations of any surface water crossings, noting areas where work near waterbodies is necessary;

h. Location of any stormwater conveyances including, but not limited to, sediment ponds, ditches, pipes, swales, stormwater diversions, culverts, and ditch blocks;

i. Discharge locations, including locations of any storm drain inlets on or in the immediate vicinity of the site that could potentially receive discharges from the project site;

j. Locations where stormwater or allowable non-stormwater will be discharged to surface waters of the state on or in the immediate vicinity of the site.

k. Locations where sediment, soil, or other construction materials will be stockpiled;

l. Designated site access points;

m. Locations of structures and other impervious surfaces upon completion of construction;

n. Natural buffer boundaries and widths;

o. Locations of fueling activity, vehicle and equipment maintenance areas, designated wash water collection areas, lubricant and chemical storage, paint storage, material storage, staging areas, and debris collection areas;

p. Locations of all activities that could potentially generate pollutants at the site, such as dumpsters, chemical storage, construction site washout, portable toilets, or equipment storage.

q. Location and types of all sediment and erosions controls, velocity dissipation devices, post-construction controls, and all other BMPs used on the site.

r. Locations of construction support activities covered by this general permit.

5. **Description and Maintenance of Control Measures**. Your SWPPP must include a narrative description of the erosion and sediment control measures that will be implemented during construction at your site to meet the conditions of this general permit. For each control measure you must provide a narrative on the following:

a. A timeframe for the installation, maintenance, and removal (if necessary) of all selected BMPs for each phase of construction activity;

b. Your rationale for the selection of all BMPs, including calculations as necessary;

c. Whether selected BMPs are temporary or permanent;

d. A description of maintenance specifications and procedures;

e. A description of structural diversion practices intended to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site;

f. A description of the removal of any temporary stormwater conveyance; and

g. A description of the temporary and final stabilization of areas of exposed soil where construction activities have been completed or temporarily ceased. Your SWPPP must describe the specific vegetative and/or non-vegetative practices you will use to comply with the stabilization requirements in Section 3.18, along with the reasons for choosing each practice.

6. **Procedures for Inspections**. The SWPPP must describe the procedures you will follow for conducting site inspections and, where necessary, taking corrective actions. The following information must also be included in your SWPPP:

   a. Personnel responsible for conducting inspections;

   b. Required frequency of inspections;

   c. Any inspection checklists or other forms that you will use; and,

   d. Rationale for reduction of inspection frequency, if necessary.

7. **Post-Construction Stormwater Management.** You must identify stormwater management practices that will be installed during the construction process to control pollutants in stormwater discharges occurring after construction operations have been completed. Maintenance for onsite stormwater management features is the responsibility of the permittee until the NOT is submitted or the feature is accepted by the party responsible for long-term maintenance. The following information must be included in your SWPPP:

   a. An explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels;

   b. A description of structural stormwater management practices such as stormwater ponds, open vegetated swales, natural depressions to allow infiltration of runoff onsite, and sequential systems that combine several practices or other post-construction stormwater management features; and

   c. The location of velocity and energy dissipation devices placed at discharge points and appropriate erosion protection for outfall channels and ditches.

8. Pollution Prevention Procedures

a. **Spill Prevention and Response Procedures**. Your SWPPP must describe the procedures you will follow to prevent and respond to spills and leaks, including:

   i. Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases. The SWPPP must identify the name or position of the employee(s) responsible for detection and response of spills and leaks;

   ii. Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies as required by Section 7.1; and,

   iii. Ways to prevent reoccurrence of such releases and steps to prevent any such releases from contaminating stormwater runoff. The SWPPP shall be modified, and changes implemented as appropriate.

b. **Waste Management Procedures**. The SWPPP must describe procedures for how you will handle and dispose of all wastes generated at your site, including, but not limited to, clearing and demolition debris, sediment removed from the site, construction and domestic waste, hazardous or toxic waste, and sanitary waste.

9. Construction Site Pollutants

a. You must include information in your SWPPP about all activities that could generate pollutants at your site. Examples of pollutant-generating activities include, but are not limited to: paving operations; concrete, paint, and stucco washout; solid waste storage and disposal; storage of fertilizers, pesticides, solvents, fuels, and soils. You must include in your SWPPP a description of the removal of construction equipment and vehicles, and any cessation of any pollutant-generating activities.

b. You must include an inventory of the pollutants and chemicals associated with your construction activity and consider where potential spills and leaks could occur.

c. If SDDANR approves the use of water treatment chemicals, your SWPPP must include:

   i. A listing of all water treatment chemicals planned for use at the site and why these chemicals were selected;

   ii. The proper dosage and method of application for all water treatment chemicals;

   iii. All applicable Safety Data Sheets (SDS) for chemicals planned to be used;

   iv. Schematic drawings of any controls or treatment systems used for the application of the water treatment chemicals;

v. A description of how the chemicals will be stored;

vi. Copies of the applicable manufacturer's specifications regarding the use of the water treatment chemicals and/or chemical treatment systems;

vii. A description of the training that personnel who handle, apply, or store the chemicals have received or will receive prior to the use of water treatment chemicals and/or chemical treatment systems;

viii. A description of safe handling, spill prevention, and spill response procedures; and

ix. A copy of the approval letter from SDDANR approving the use of the water treatment chemicals and/or chemical treatment systems.

10. **Non-Stormwater Discharges**. You must identify in your SWPPP all sources of non-stormwater discharges.

11. **Infeasibility Documentation**. If you determine it is infeasible to comply with any of the requirements of this general permit, you must thoroughly document your rationale in your SWPPP.

5.4 SWPPP Certification

You must sign and date your SWPPP as required by Section 7.4.

5.5 Required SWPPP Modifications

1. **Conditions Requiring SWPPP Modification**. You must modify your SWPPP, including the site map(s), in response to any of the following conditions:

   a. When you have a new operator responsible for implementation of any part the SWPPP.

   b. When you make changes to your construction plans, sediment and erosion control measures, or any BMPs at your site that are no longer accurately reflected in your SWPPP. This includes changes made in response to corrective actions triggered by inspections.

   c. To reflect areas on your site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.

   d. If inspections by site staff, local officials, SDDANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with this general permit.

   e. To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.

f. If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, different dosage rates, or different areas or methods of application.

2. **Deadlines for SWPPP Modification**. You must complete the required revisions to the SWPPP within 7 calendar days following any of the items listed above.

3. **Documentation of Modifications to the SWPPP**. You are required to maintain records showing the dates of all SWPPP modifications. The records must include the name of the person authorizing each change and a brief summary of all changes.

4. **Certification Requirements**. All modifications made to your SWPPP must be signed and certified as required in Section 7.4.

5. **Required Notice to Other Operators**. If there are multiple operators at the site, you must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

6.0 SPECIAL CONDITIONS

6.1 Qualified Local Programs

1. To receive approval as a qualified local program, SDDANR will review the local requirements to ensure they comply with both state and federal requirements. SDDANR may authorize minor variations and alternative standards in lieu of the specific conditions of the general permit based upon the unique comprehensive control measures established in the qualified local program. SDDANR will review each qualified local program for recertification during the renewal of its municipal separate storm sewer system permit.

2. If a construction site is within the jurisdiction of a qualified local program, the operator shall submit a NOI to SDDANR to be covered under the general permit and comply with all requirements of the qualified local program. Compliance with the qualified local program requirements is deemed to be in compliance with this general permit. A violation of the qualified local program requirements is also a violation of this general permit.

3. At this time only the City of Sioux Falls is meeting SDDANR's minimum requirements. If additional entities are approved as a qualified local program in the future, a modification to this general permit will be offered for public comment in the daily or weekly newspaper within the area affected by the facility or activity.

7.0 REPORTING AND RECORDKEEPING REQUIREMENTS

7.1 Emergency Spill Notification

1. You must report a release or spill of a regulated substance (including petroleum and petroleum products) to SDDANR as soon as you become aware of it if any one of the following conditions exists:

    a. The release or spill threatens or is in a position to threaten waters of the state (surface water or ground water);

    b. The release or spill causes an immediate danger to human health or safety;

    c. The release or spill exceeds 25 gallons;

    d. The release or spill causes a sheen on surface water;

    e. The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01;

    f. The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01;

    g. The release or spill of any substance that harms or threatens to harm wildlife or aquatic life;

    h. The release or spill of crude oil in field activities under SDCL 45-9 is greater than 1 barrel (42 gallons); or

    i. The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, U.S. EPA.

2. To report a release or spill, call SDDANR at (605) 773-3296 during regular office hours (8 a.m. to 5 p.m. Central Time). To report the release after hours, on weekends, or on holidays, call South Dakota Emergency Management at (605) 773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged and the location of the discharge, shall be sent to SDDANR within 14 days of the discharge.

7.2 Planned Changes

1. You must notify SDDANR as soon as possible of any planned physical alterations or additions to your site. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged or could result in noncompliance with permit conditions. This notification also applies to pollutants that are not addressed by the effluent limits in Section 3.0.

2. You must give advance notice to SDDANR of any planned changes to your site that may result in noncompliance with the general permit requirements.

7.3 Records Contents & Retention

1. You must maintain onsite, or make readily available to SDDANR, the following documents:

    a. The SWPPP, including all certificates, reports, records, or other information required by this general permit.

    b. A copy of the NOI submitted to SDDANR, along with any correspondence related to coverage under this general permit.

    c. A copy of the authorization letter you receive from SDDANR granting coverage under this general permit.

    d. A copy of this general permit.

2. You must retain copies of the SWPPP, your inspection records, all reports required by this general permit, and records of the data you used to complete the NOI and NOT for a period of at least three (3) years from the date you terminate your coverage under the general permit. SDDANR may extend the time period for retaining your records with a written notification to you.

3. You must use NeT to electronically submit forms and documents required under this general permit to SDDANR in accordance with Section 2.7. To access NeT, go to https://cdx.epa.gov/cdx.

4. Records of monitoring information in accordance with Section 3.21 shall include:

    a. The date, exact place, and time of sampling or measurements;

    b. The initials or names of the individuals who performed the sampling or measurements;

    c. The dates analyses were performed;

    d. The time analyses were initiated;

    e. The initials or names of individuals who performed the analyses;

f. References and written procedures, when available, for the analytical techniques or methods used; and,

g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

7.4 Signatory Requirements

1. All applications submitted to SDDANR under this general permit must be signed by either a principal executive officer or ranking elected official.

2. All reports required by the general permit and other information requested by SDDANR shall be signed by the person described in Paragraph 1 above or by a duly authorized representative of that person. A person is a duly authorized representative if:

   a. The authorization is made in writing by a person described in Paragraph 1 above and submitted to SDDANR; and

   b. The authorized representative must have responsibility for the overall operation of the site, such as the superintendent, or have overall responsibility for environmental matters. A duly authorized representative may be either a named individual or any individual occupying a named position.

3. If the authorization under Paragraph 2 above is no longer accurate, you must submit a new authorization to SDDANR.

4. You must include the following certification statement with all documents signed under this section:

   I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

7.5 Duty to Provide Information

1. You must provide, within 30 days, any information SDDANR requests to determine whether cause exists for modifying, revoking and reissuing, or terminating this general permit, or to determine compliance with the general permit.

2. You must provide to SDDANR, upon request, copies of the records required to be kept by this general permit.

3. You must make your SWPPP available to SDDANR, U.S. EPA, or your local storm sewer operator upon request.

4. If you become aware that you failed to submit any relevant facts or submitted incorrect information in your NOI, you must promptly submit such facts or information.

5. You must provide SDDANR with an updated point of contact including a mailing address.

7.6 Reporting Compliance and Noncompliance

1. You must report any noncompliance that may endanger the public health or the environment. You must provide the following information verbally to SDDANR within 24 hours of the time you become aware of the circumstances:

   a. An unanticipated bypass that exceeds an effluent limit in the general permit;

   b. An update which exceeds an effluent limit in the general permit; or

   c. A violation of a maximum daily discharge limit for any of the pollutants listed by the Secretary in the general permit.

2. You must provide a written report to SDDANR within five days after you become aware of the circumstances. The written report must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and time and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7.7 Effluent Violation, Bypass, and Emergency Discharge Requirements

1. You must report any possible or actual endangerment to health or the environment attributed to an effluent violation, bypass, or emergency discharge as soon as possible, but no later than 24 hours after becoming aware of the circumstances as follows:

   a. During regular business hours (8:00 a.m. – 5:00 p.m. Central Time), the report shall be made at (800) 737-8676.

   b. Outside of normal business hours, the permittee shall contact the South Dakota Emergency Management at (605) 773-3231.

2. You must report effluent violations, bypass, and emergency discharges that do not meet the conditions above to the Secretary within 24 hours from the time you become aware of the circumstances either by telephone or email as follows:

   a. Via telephone at (800) 737-8676. Outside of normal business hours (8:00 a.m. – 5:00 p.m. Central Time), please leave a message.

   b. Via email at stormwater@state.sd.us.

3. You must submit notice of bypass as follows:

    a. **Anticipated bypass**. If you know in advance of the need for a bypass, you must submit notice to the Secretary at least 10 days prior to the date of the anticipated bypass.

    b. **Unanticipated bypass**. You must submit notice of an unanticipated bypass to the Secretary at (800) 737-8676 or via email at stormwater@state.sd.us by the first workday (8:00 a.m. – 5:00 p.m. Central Time) following the day you became aware of the circumstances.

4. The Secretary may require you to notify the general public and/or downstream users that could be or will be impacted by the effluent violation, bypass, or emergency discharge.

    a. In making the decision to require public notification, the Secretary will consider the potential impacts as a result of the effluent violation, bypass, or emergency discharge, the downstream beneficial uses (such as drinking water or recreation), and the potential for public contact.

    b. If required by the Secretary, you shall notify the public and/or downstream users as soon as possible, but in no case more than 24 hours after the effluent violation, bypass, or emergency discharge begins.

5. In addition to verbal notification, you must submit a written report of the circumstances regarding the effluent violation, bypass, or emergency discharge to the Secretary.

    a. Reports shall be submitted in accordance with Section 7.3.

    b. The written submission shall contain:

        i. A description of the event and its cause;

        ii. The period of the event, including exact dates and times;

        iii. Where the stormwater was discharged;

        iv. The estimated time the event is expected to continue if it has not been corrected;

        v. Any adverse effects, such as fish kills;

        vi. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the event; and

        vii. If public notification was required, describe how the public was notified of the discharge.

6. The written report shall be submitted by the 28th day of the following month. The Secretary may require a written report be submitted sooner or may require additional information if the discharge has the potential to impact human health or the environment.

7.8 Availability of Information

1. Except for data determined to be confidential under ARSD Section 74:52:02:17, all reports you prepare and submit in accordance with the terms of this general permit must be available for public inspection at the offices of the SDDANR.

2. The following will not be considered confidential:

   a. Project owner information, including your name and address;

   b. All permitting forms that have been submitted to SDDANR, including but not limited to the NOI, NOT, and Contractor Authorization forms.

   c. Your SWPPP and all inspection reports completed by the facility and submitted to SDDANR.

8.0 COMPLIANCE REQUIREMENTS

8.1 Duty to Comply

1. You must comply with all conditions of this general permit. Any permit noncompliance is a violation of the South Dakota Water Pollution Control Act and the federal Clean Water Act. A violation is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

2. If you violate a condition of the general permit or make any false statement, representation, or certification, you may be subject to enforcement action under SDCL 34A-2.

3. You are responsible for complying with all local ordinances and requirements. Local governments may have additional or more stringent requirements than those included in this general permit.

8.2 Duty to Mitigate

You must take all reasonable steps to minimize or prevent any discharge of pollutants in violation of this general permit if it has a reasonable likelihood of adversely affecting human health or the environment.

8.3 Need to Halt or Reduce Activity Not a Defense

It is not a defense for you in an enforcement action that it would have been necessary to halt or reduce your construction activity to maintain compliance with the conditions of the general permit.

8.4 Upset Conditions

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limits if the requirements of Paragraph 2 of this section are met. You will have an opportunity for a judicial determination on any claim of an upset only if SDDANR or U.S. EPA brings an enforcement action for noncompliance with technology-based effluent limits.

2. If you wish to establish an affirmative defense of any upset, you must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

    a. An upset occurred and you can identify the cause of the upset;

    b. You were properly operating the pollution controls at your site;

c. You notified SDDANR within 24 hours of becoming aware of the upset.

d. You complied with the mitigation measures required under Section 8.2.

3. In any enforcement proceeding, you have the burden of proof to establish and document that an upset occurred.

8.5 Removed Substances

Collected solids, sludge, grit, or other pollutants removed in the course of treatment shall be properly disposed of in a manner to prevent any pollutant from entering surface waters of the state or creating a health hazard.

8.6 Inspections and Entry

You must allow SDDANR, U.S. EPA, or the operator of a MS4 receiving your discharges to:

1. Enter your construction site and enter areas where you keep the records required by the general permit;

2. Have access to and copy, at reasonable times, any records that you must keep under the conditions of the general permit;

3. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated under this general permit; and

4. Sample or monitor, at reasonable times, any substances or parameters at any location for the purpose of ensuring permit compliance or as otherwise authorized by the South Dakota Water Pollution Control Act (SDCL 34A-2).

8.7 Oil and Hazardous Substance Liability

Nothing in this general permit shall relieve you from any responsibilities, liabilities, or penalties you may be subject to under Section 311 of the federal Clean Water Act.

8.8 Penalties for Violations of General Permit Conditions

1. If you violate a condition of this general permit, you are in violation of the provisions of SDCL 34A-2-36 and subject to penalties under SDCL 34A-2-75. In addition to a jail sentence authorized by SDCL 22-6-2, you can be subject to a criminal fine not to exceed $10,000 per day per violation. You can also be subject to a civil penalty not to exceed $10,000 per day per violation, or for damages to the environment of this state.

2. Except as provided above in the Upset Conditions in Section 8.4, nothing in this general permit relieves you of the civil or criminal penalties for noncompliance.

8.9 Penalties for Falsification of Reports

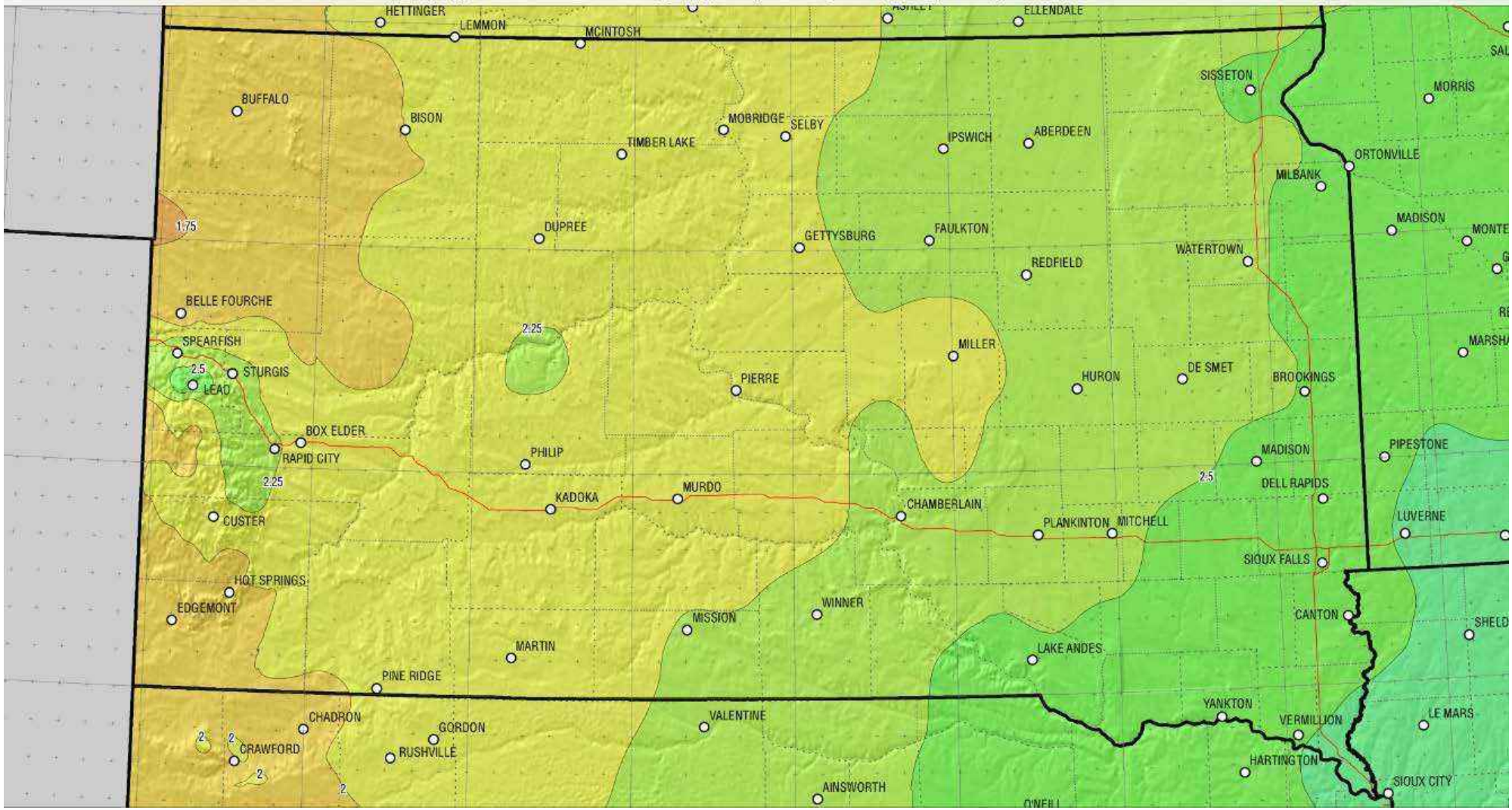
1. If you knowingly make any false statement, representation, or certification in any record or other document submitted or required to be maintained under this general

permit, you are in violation of the provisions of SDCL 34A-2-77 and subject to penalties under SDCL 34A-2-75.

2. If you falsify, tamper with, or knowingly render inaccurate any monitoring device or method required to be maintained under this general permit, you are in violation of the provisions of SDCL 34A-2-77 and subject to penalties under SDCL 34A-2-75.

3. In addition to a jail sentence authorized by SDCL 22-6-2, you can be subject to a criminal fine not to exceed $10,000 per day per violation. You are also subject to a civil penalty not to exceed $10,000 per day per violation, or for damages to the environment of this state.

ftp://hdsc.nws.noaa.gov/pub/hdsc/data/mw/nd2y24h.pdf



[redacted]

Appendix B

Permitting Documentation
(NOI, Permit Card, Permit Letters, Blank NOT/MOD)

STATE OF SOUTH DAKOTA

BEFORE THE SECRETARY OF

THE DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION OF)
South Deuel Wind)
)
STATE OF South Dakota)
)
COUNTY OF Deuel)

CERTIFICATION OF APPLICANT

I, Bryan Schueler, the applicant in the above matter after being duly sworn upon oath hereby certify the following information in regard to this application:

I have read and understand South Dakota Codified Law Section 1-41-20 which provides:

"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45, including any application by any concentrated swine feeding operation for authorization to operate under a general permit, upon making a specific finding that:

(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based upon a finding that the applicant, any officer, director, partner, or resident general manager of the facility for which application has been made:

(a) Has intentionally misrepresented a material fact in applying for a permit;

(b) Has been convicted of a felony or other crime involving moral turpitude;

(c) Has habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage;

(d) Has had any permit revoked under the environmental laws of any state or the United States; or

(e) Has otherwise demonstrated through clear and convincing evidence of previous actions that the applicant lacks the necessary good character and competency to reliably carry out the obligations imposed by law upon the permit holder; or

(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.

All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review, recommendation or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification,

consideration of the application may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

I certify pursuant to 1-41-20, that as an applicant, officer, director, partner, or resident general manager of the activity or facility for which the application has been made that I; a) have not intentionally misrepresented a material fact in applying for a permit; b) have not been convicted of a felony or other crime of moral turpitude; c) have not habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage; (d) have not had any permit revoked under the environmental laws of any state or the United States; or e) have not otherwise demonstrated through clear and convincing evidence of previous actions that I lack the necessary good character and competency to reliably carry out the obligations imposed by law upon me. I also certify that this application does not substantially duplicate an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Further;

"I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct."

Dated this 16th day of July, 2025.

Bryan Schueler

Applicant (print)

Applicant (signature)

Subscribed and sworn before me this 16th day of July, 2025.

Sophia Alyse Sobrito

Notary Public (signature)

My commission expires:

OFFICIAL SEAL
SOPHIA ALYSE SOBRITO
Notary Public, State of Illinois
Commission No. 1008775
My Commission Expires April 18, 2029

(SEAL)

PLEASE ATTACH ANY ADDITIONAL INFORMATION NECESSARY TO DISCLOSE ALL FACTS AND DOCUMENTS PERTAINING TO SDCL 1-41-20 (1) (a) THROUGH (e). ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION

Appendix C

Soil Maps

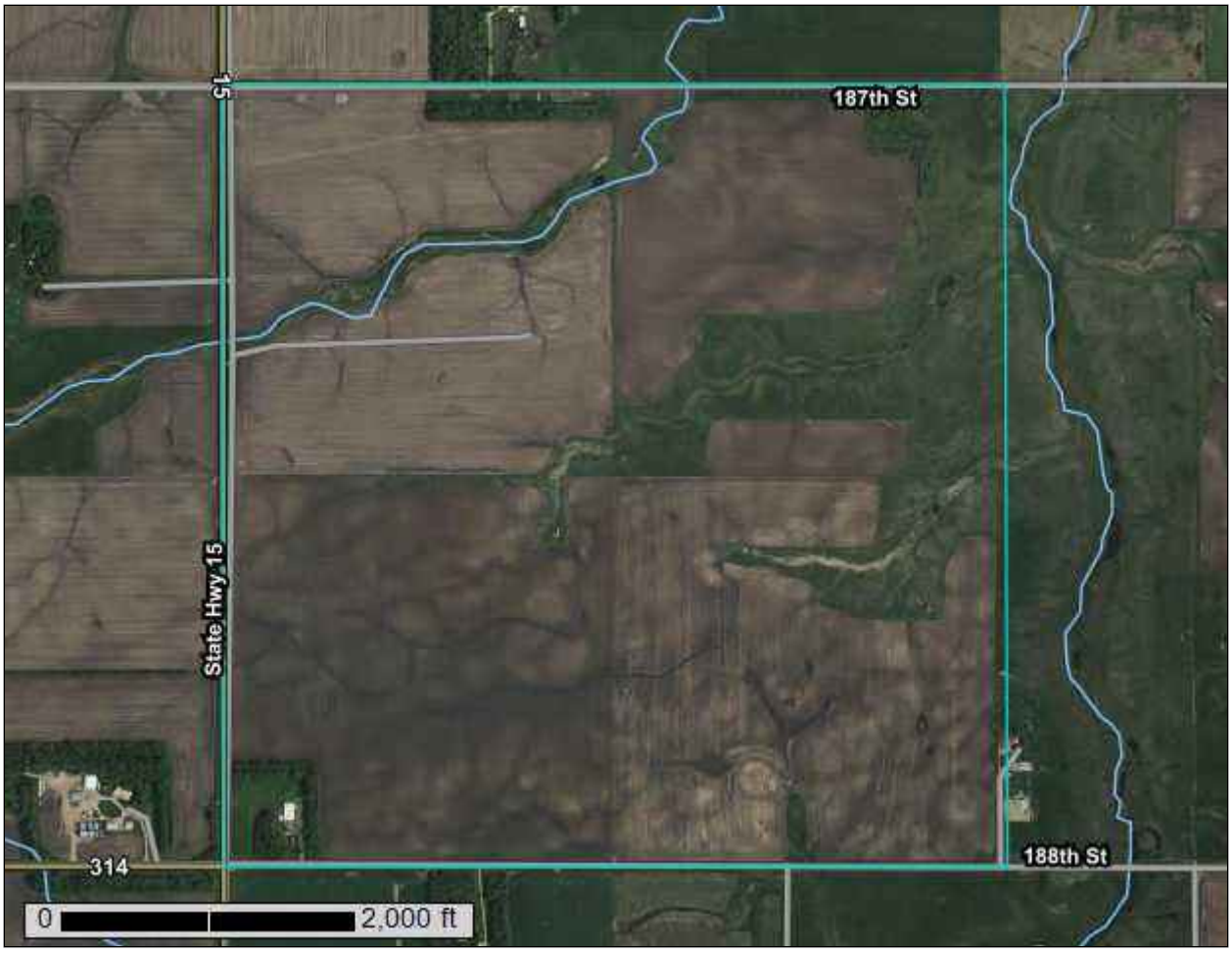
United States Department of Agriculture

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 Deuel County, South Dakota



July 9, 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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

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

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

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

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

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

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

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

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

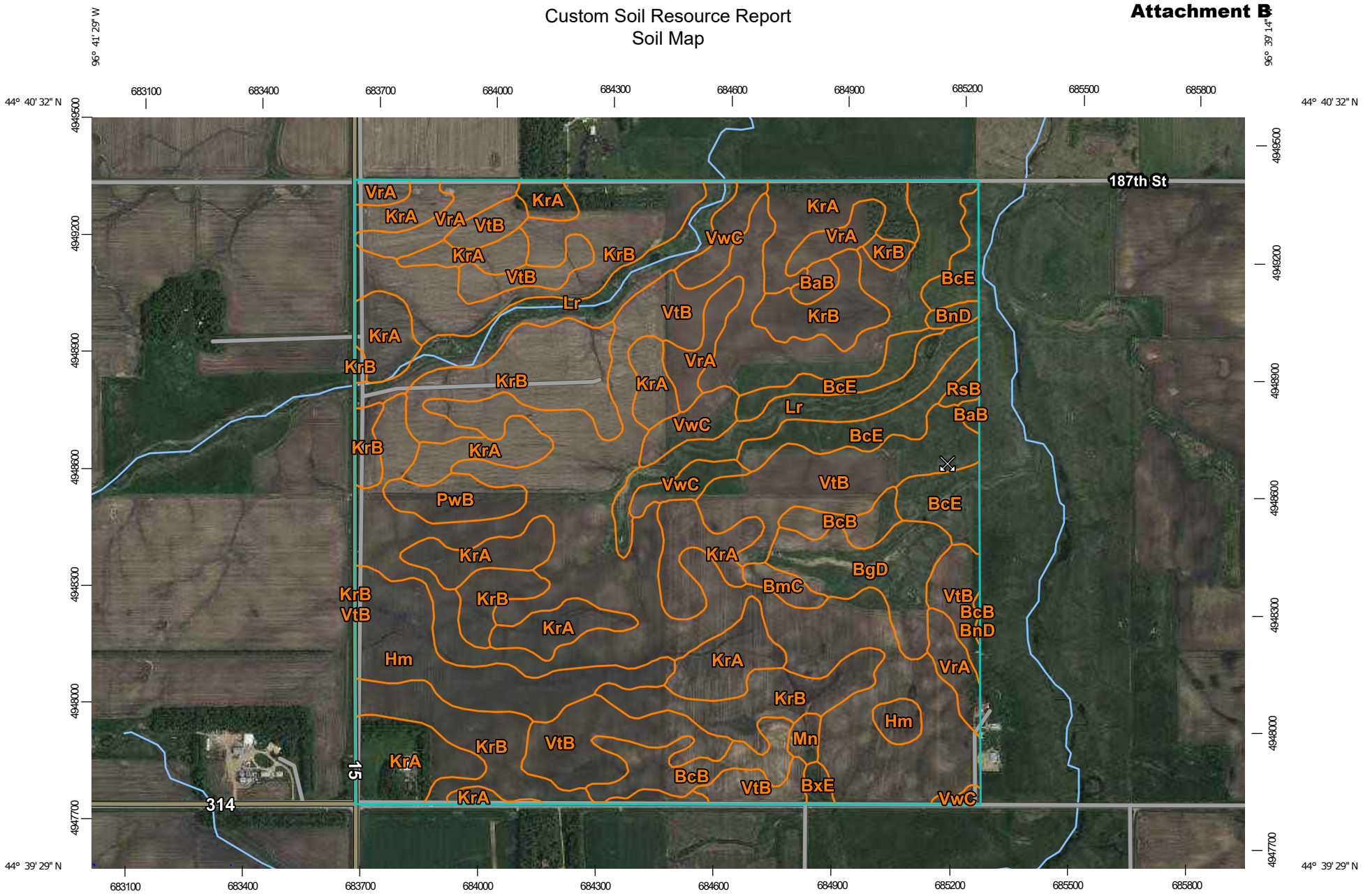
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:13,600 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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: Deuel County, South Dakota
Survey Area Data: Version 28, 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 2, 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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BaB	Barnes clay loam, 2 to 6 percent slopes	3.1	0.5%
BcB	Barnes-Buse loams, coteau, 2 to 6 percent slopes	18.0	2.8%
BcE	Barnes-Buse loams, 15 to 25 percent slopes	31.7	4.9%
BgD	Barnes-Buse-Svea loams, 2 to 15 percent slopes	19.5	3.0%
BmC	Barnes-Svea-Buse loams, 2 to 9 percent slopes	3.2	0.5%
BnD	Barnes, stony-Svea-Buse, stony loams, 2 to 12 percent slopes	1.9	0.3%
BxE	Buse-Lamoure, channeled, complex, 0 to 40 percent slopes	1.7	0.3%
Hm	Hamerly-Badger complex, 0 to 2 percent slopes	30.5	4.7%
KrA	Kranzburg-Brookings silty clay loams, 0 to 2 percent slopes	99.2	15.4%
KrB	Kranzburg-Brookings silty clay loams, 1 to 6 percent slopes	115.2	17.8%
Lr	Lamoure-Rauville silty clay loams, channeled	37.7	5.8%
Mn	McIntosh-Lamoure silty clay loams	2.1	0.3%
PwB	Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	8.2	1.3%
RsB	Renshaw-Sioux complex, coteau, 2 to 6 percent slopes	1.6	0.2%
VrA	Vienna-Brookings complex, 0 to 2 percent slopes	26.1	4.0%
VtB	Vienna-Brookings complex, 1 to 6 percent slopes	229.2	35.5%
VwC	Vienna-Buse complex, 6 to 9 percent slopes	17.2	2.7%
Totals for Area of Interest		**646.0**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

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

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

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

Deuel County, South Dakota

BaB—Barnes clay loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2yyj2
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: 85 percent
Minor components: 15 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: clay loam
Bw - 8 to 18 inches: clay 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 (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 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R102AY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Minor Components

Svea

Percent of map unit: 7 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

Buse

Percent of map unit: 3 percent
Landform: Ground moraines
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

Badger

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

Barnes, very stony

Percent of map unit: 1 percent
Landform: Ground moraines
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

BcB—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

BcE—Barnes-Buse loams, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2yyjk
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

Barnes and similar soils: 50 percent
Buse and similar soils: 35 percent
Minor components: 15 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
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: 15 to 25 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): 6e
Hydrologic Soil Group: C
Ecological site: R102AY010SD - 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
A - 0 to 8 inches: loam
Bk - 8 to 32 inches: clay loam
C - 32 to 79 inches: clay loam

Properties and qualities
Slope: 15 to 25 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): 7e
Hydrologic Soil Group: C
Ecological site: R102AY012SD - Thin Upland
Forage suitability group: Limy Upland (G102AY400SD)
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Minor Components

Parnell, undrained

Percent of map unit: 5 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

Sioux

Percent of map unit: 4 percent
Landform: Outwash plains
Landform position (two-dimensional): Backslope
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

Vallers

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

Renshaw

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

BgD—Barnes-Buse-Svea loams, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2yyjl
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

Barnes and similar soils: 40 percent
Buse and similar soils: 30 percent
Svea and similar soils: 20 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

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

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 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: 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 Svea

Setting
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Fine-loamy till

Typical profile
A1 - 0 to 8 inches: loam
A2 - 8 to 14 inches: loam
Bw - 14 to 31 inches: loam

Bk - 31 to 47 inches: clay loam
C - 47 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 30 to 41 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 10.5 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

Vallers

Percent of map unit: 4 percent
Landform: Rims on depressions
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Parnell, undrained

Percent of map unit: 3 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

Rauville, frequently flooded

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Not suited (G102AY000SD)
Hydric soil rating: Yes

Arvilla

Percent of map unit: 1 percent

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

BmC—Barnes-Svea-Buse loams, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2yyjw
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

Barnes and similar soils: 40 percent
Svea and similar soils: 25 percent
Buse and similar soils: 20 percent
Minor components: 15 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

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: 6 to 9 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): 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 Svea

Setting

Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Fine-loamy till

Typical profile

A1 - 0 to 8 inches: loam
A2 - 8 to 14 inches: loam
Bw - 14 to 31 inches: loam
Bk - 31 to 47 inches: clay loam
C - 47 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 30 to 41 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 10.5 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

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: 6 to 9 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): 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

Minor Components

Parnell, undrained

Percent of map unit: 8 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

Vallers

Percent of map unit: 7 percent
Landform: Rims on depressions
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

BnD—Barnes, stony-Svea-Buse, stony loams, 2 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2yyjm
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

Barnes, stony, and similar soils: 50 percent
Svea and similar soils: 25 percent
Buse, stony, and similar soils: 20 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Barnes, Stony

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: 2 to 12 percent
Surface area covered with cobbles, stones or boulders: 0.1 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): 7s
Hydrologic Soil Group: C
Ecological site: R102DY010SD - Loamy
Forage suitability group: Loam (G102AY100SD)
Other vegetative classification: Loam (G102AY100SD)
Hydric soil rating: No

Description of Svea

Setting

Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Fine-loamy till

Typical profile

A - 0 to 8 inches: loam
A - 8 to 14 inches: loam
Bw - 14 to 31 inches: loam
Bk - 31 to 47 inches: clay loam
C - 47 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 30 to 41 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 10.5 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

Description of Buse, Stony

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 12 percent
Surface area covered with cobbles, stones or boulders: 0.1 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): 7s
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

Parnell, undrained

Percent of map unit: 3 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

Vallers

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

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

Map Unit Setting

National map unit symbol: fzrk
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 9 inches: loam
H2 - 9 to 22 inches: loam
H3 - 22 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: 30 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 18 inches: silty clay loam
H2 - 18 to 33 inches: silty clay loam
H3 - 33 to 45 inches: silty clay loam
H4 - 45 to 60 inches: stratified sandy loam to 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
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 11.0 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

Barnes

Percent of map unit: 10 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

Rauville

Percent of map unit: 6 percent

Landform: Flood plains on moraines
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

Sioux

Percent of map unit: 2 percent
Landform: 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

Divide

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

Hm—Hamerly-Badger complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2wkrg
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

Hamerly and similar soils: 65 percent
Badger and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hamerly

Setting

Landform: Rims on drainageways
Down-slope shape: Linear

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

Typical profile
Ap - 0 to 8 inches: loam
Bk - 8 to 30 inches: loam
C - 30 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 to high (0.20 to 2.00 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 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 9.9 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

Svea
Percent of map unit: 3 percent
Landform: Drainageways
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

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

Balaton
Percent of map unit: 2 percent
Landform: Rims on drainageways
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R102AY006SD - Limy Subirrigated
Other vegetative classification: Limy Upland (G102AY400SD)
Hydric soil rating: No

Hamerly, moderately saline
Percent of map unit: 1 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

KrA—Kranzburg-Brookings silty clay loams, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2wkp2
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

Kranzburg and similar soils: 65 percent
Brookings and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kranzburg

Setting

Landform: Ground moraines
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over fine-loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bw - 8 to 28 inches: silty clay loam
2Bk - 28 to 62 inches: 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 9.9 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 Brookings

Setting

Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loess over fine-loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 23 inches: silty clay loam
Bk1 - 23 to 31 inches: silt loam
2Bk2 - 31 to 41 inches: clay loam
2C - 41 to 79 inches: clay 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: 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 10.3 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

Badger

Percent of map unit: 4 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Mckranz

Percent of map unit: 4 percent
Landform: Rims on swales

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: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R102AY004SD - Wet Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Estelline

Percent of map unit: 1 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

KrB—Kranzburg-Brookings silty clay loams, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2wkp4
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

Kranzburg and similar soils: 70 percent
Brookings and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kranzburg

Setting

Landform: Ground moraines
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over fine-loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
Bw - 8 to 28 inches: silty clay loam
2Bk - 28 to 62 inches: 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 9.9 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 Brookings

Setting

Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loess over fine-loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 23 inches: silty clay loam
Bk1 - 23 to 31 inches: silt loam
2Bk2 - 31 to 41 inches: clay loam
2C - 41 to 79 inches: clay 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: 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 10.3 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

Badger

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

Mckranz

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

Hidewood, frequently flooded

Percent of map unit: 3 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY002SD - Linear Meadow
Other vegetative classification: Wet (G102AY900SD)
Hydric soil rating: Yes

Estelline

Percent of map unit: 1 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

Lr—Lamoure-Rauville silty clay loams, channeled

Map Unit Setting

National map unit symbol: fzsj
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 18 inches: silty clay loam
H2 - 18 to 33 inches: silty clay loam
H3 - 33 to 45 inches: silty clay loam
H4 - 45 to 60 inches: stratified sandy loam to 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
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 11.0 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
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium over outwash

Typical profile

H1 - 0 to 25 inches: silty clay loam
H2 - 25 to 43 inches: silty clay loam
H3 - 43 to 60 inches: stratified gravelly sand to 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: 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 10.7 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

Divide

Percent of map unit: 6 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

Marysland, undrained

Percent of map unit: 6 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

Buse

Percent of map unit: 3 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

Mn—McIntosh-Lamoure silty clay loams

Map Unit Setting

National map unit symbol: fzsp
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

Mcintosh and similar soils: 65 percent
Lamoure and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mcintosh

Setting

Landform: Rims on swales
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loess over loamy till

Typical profile

H1 - 0 to 9 inches: silty clay loam
H2 - 9 to 29 inches: silt loam
H3 - 29 to 60 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 to high (0.20 to 1.98 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: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

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

Description of Lamoure

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 18 inches: silty clay loam
H2 - 18 to 33 inches: silty clay loam
H3 - 33 to 45 inches: silty clay loam
H4 - 45 to 60 inches: stratified sandy loam to 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
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 11.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w
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

Badger
Percent of map unit: 3 percent
Landform: Swales
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: Yes

Brookings
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: Overflow (G102AY500SD)
Hydric soil rating: No

Kranzburg
Percent of map unit: 2 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

Vienna
Percent of map unit: 2 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

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

RsB—Renshaw-Sioux complex, coteau, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2xhdf
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

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

Description of Renshaw

Setting

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

Typical profile

Ap - 0 to 8 inches: loam

Bw - 8 to 13 inches: loam
2Bk - 13 to 27 inches: gravelly loamy sand
2C - 27 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: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
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: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B
Ecological site: R102DY014SD - Shallow Gravel
Forage suitability group: Very Droughty Loam (G102AY130SD)
Other vegetative classification: Very Droughty Loam (G102AY130SD)
Hydric soil rating: No

Description of Sioux

Setting

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

Typical profile

Ap - 0 to 6 inches: gravelly loam
AC - 6 to 11 inches: gravelly sandy loam
C - 11 to 79 inches: very gravelly sand

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
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: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B

Ecological site: R102DY016SD - Very Shallow
Forage suitability group: Shallow (G102AY003SD)
Other vegetative classification: Shallow (G102AY003SD)
Hydric soil rating: No

Minor Components

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

Spottswood, occasionally flooded
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: Subirrigated (G102AY700SD)
Hydric soil rating: No

VrA—Vienna-Brookings complex, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2wkpw
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
Vienna and similar soils: 65 percent
Brookings and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vienna

Setting
Landform: Ground moraines
Landform position (three-dimensional): Rise
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Loess over fine-loamy till

Typical profile
Ap - 0 to 8 inches: silt loam
Bw - 8 to 18 inches: silty clay loam
2Bk - 18 to 30 inches: clay loam
2BCk - 30 to 40 inches: clay loam
2C - 40 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 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 9.3 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 Brookings

Setting
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loess over fine-loamy till

Typical profile
Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 23 inches: silty clay loam
Bk1 - 23 to 31 inches: silt loam
2Bk2 - 31 to 41 inches: clay loam
2C - 41 to 79 inches: clay 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: 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 10.3 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

Badger

Percent of map unit: 4 percent
Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R102AY003SD - Subirrigated
Other vegetative classification: Subirrigated (G102AY700SD)
Hydric soil rating: No

Mckranz

Percent of map unit: 4 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

Estelline

Percent of map unit: 1 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

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

VtB—Vienna-Brookings complex, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2wkpx
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

Vienna and similar soils: 70 percent
Brookings and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vienna

Setting

Landform: Ground moraines
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over fine-loamy till

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 18 inches: silty clay loam
2Bk - 18 to 30 inches: clay loam
2BCk - 30 to 40 inches: clay loam
2C - 40 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 9.3 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 Brookings

Setting

Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loess over fine-loamy till

Typical profile

Ap - 0 to 8 inches: silty clay loam
A - 8 to 15 inches: silty clay loam
Bw - 15 to 23 inches: silty clay loam
Bk1 - 23 to 31 inches: silt loam
2Bk2 - 31 to 41 inches: clay loam
2C - 41 to 79 inches: clay 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: 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 10.3 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

Mckranz

Percent of map unit: 4 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: 4 percent
Landform: Drainageways

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

Estelline

Percent of map unit: 1 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

VwC—Vienna-Buse complex, 6 to 9 percent slopes

Map Unit Setting

National map unit symbol: fzts
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: Farmland of statewide importance

Map Unit Composition

Vienna 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 Vienna

Setting

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

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 15 inches: silt loam
H3 - 15 to 29 inches: clay loam
H4 - 29 to 60 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 0.57 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: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 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
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 22 inches: loam
H3 - 22 to 60 inches: 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 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 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): 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

Minor Components

Brookings
Percent of map unit: 5 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

Mcintosh
Percent of map unit: 4 percent
Landform: Rims on swales
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

Badger
Percent of map unit: 1 percent
Landform: Swales
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: Yes

Soil Information for All Uses

Suitabilities and Limitations for Use

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

Land Management

Land management interpretations are tools designed to guide the user in evaluating existing conditions in planning and predicting the soil response to various land management practices, for a variety of land uses, including cropland, forestland, hayland, pastureland, horticulture, and rangeland. Example interpretations include suitability for a variety of irrigation practices, log landings, haul roads and major skid trails, equipment operability, site preparation, suitability for hand and mechanical planting, potential erosion hazard associated with various practices, and ratings for fencing and waterline installation.

Erosion Hazard (Off-Road, Off-Trail)

The ratings in this interpretation indicate the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. The ratings are based on slope, soil erosion factor K, and an index of rainfall erosivity (R). The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

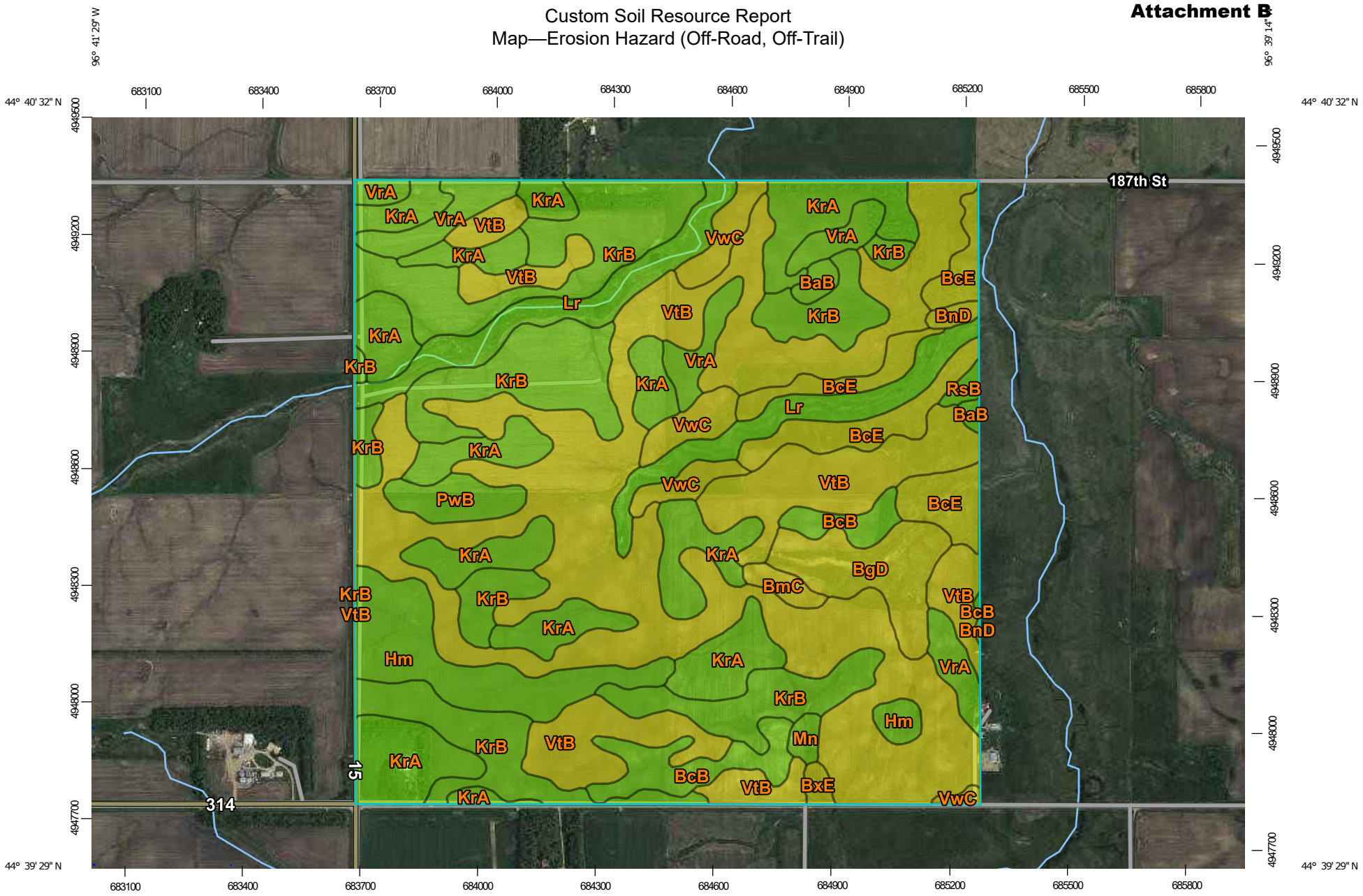
The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

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.

Custom Soil Resource Report
Map—Erosion Hazard (Off-Road, Off-Trail)



Map Scale: 1:13,600 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very severe
- Severe
- Moderate
- Slight
- Not rated or not available

Soil Rating Lines
- Very severe
- Severe
- Moderate
- Slight
- Not rated or not available

Soil Rating Points
- Very severe
- Severe
- Moderate
- Slight
- 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: Deuel County, South Dakota
Survey Area Data: Version 28, 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 2, 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—Erosion Hazard (Off-Road, Off-Trail)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BaB	Barnes clay loam, 2 to 6 percent slopes	Slight	Barnes (85%)		3.1	0.5%
			Svea (7%)			
			Badger (2%)			
			Tonka, undrained (2%)			
			Barnes, very stony (1%)			
BcB	Barnes-Buse loams, coteau, 2 to 6 percent slopes	Slight	Barnes (60%)		18.0	2.8%
			Svea (6%)			
			Renshaw (2%)			
			Badger (1%)			
			Tonka, undrained (1%)			
BcE	Barnes-Buse loams, 15 to 25 percent slopes	Moderate	Barnes (50%)	Surface kw times slope times R index (0.66)	31.7	4.9%
			Buse (35%)	Surface kw times slope times R index (0.69)		
			Sioux (4%)	Surface kw times slope times R index (0.65)		
			Renshaw (3%)	Surface kw times slope times R index (0.42)		
BgD	Barnes-Buse-Svea loams, 2 to 15 percent slopes	Moderate	Barnes (40%)	Surface kw times slope times R index (0.53)	19.5	3.0%
			Buse (30%)	Surface kw times slope times R index (0.59)		
			Arvilla (1%)	Surface kw times slope times R index (0.23)		
BmC	Barnes-Svea-Buse loams, 2 to 9 percent slopes	Moderate	Barnes (40%)	Surface kw times slope times R index (0.25)	3.2	0.5%
			Buse (20%)	Surface kw times slope times R index (0.37)		
BnD	Barnes, stony-Svea-Buse, stony loams, 2 to 12 percent slopes	Moderate	Barnes, stony (50%)	Surface kw times slope times R index (0.15)	1.9	0.3%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Buse, stony (20%)	Surface kw times slope times R index (0.56)		
BxE	Buse-Lamoure, channeled, complex, 0 to 40 percent slopes	Moderate	Buse (50%)	Surface kw times slope times R index (0.73)	1.7	0.3%
			Barnes (10%)	Surface kw times slope times R index (0.55)		
			Sioux (2%)	Surface kw times slope times R index (0.63)		
Hm	Hamerly-Badger complex, 0 to 2 percent slopes	Slight	Hamerly (65%)		30.5	4.7%
			Badger (25%)			
			Svea (3%)			
			Badger, poorly drained (2%)			
			Tonka, undrained (2%)			
			Balaton (2%)			
			Hamerly, moderately saline (1%)			
KrA	Kranzburg-Brookings silty clay loams, 0 to 2 percent slopes	Slight	Kranzburg (65%)		99.2	15.4%
			Brookings (25%)			
			Badger (4%)			
			Mckranz (4%)			
			Estelline (1%)			
			Tonka, undrained (1%)			
KrB	Kranzburg-Brookings silty clay loams, 1 to 6 percent slopes	Slight	Kranzburg (70%)		115.2	17.8%
			Brookings (20%)			
			Hidewood, frequently flooded (3%)			
			Mckranz (3%)			
			Badger (3%)			
			Estelline (1%)			
Lr	Lamoure-Rauville silty clay loams, channeled	Slight	Lamoure, channeled (60%)		37.7	5.8%
			Rauville (25%)			
			Divide (6%)			
			Marysland, undrained (6%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Mn	McIntosh-Lamoure silty clay loams	Slight	McIntosh (65%)		2.1	0.3%
			Lamoure (25%)			
			Badger (3%)			
			Brookings (3%)			
			Kranzburg (2%)			
			Vienna (2%)			
PwB	Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	Slight	Poinsett (65%)		8.2	1.3%
			Waubay (25%)			
			Cubden (2%)			
			Tonka, undrained (2%)			
RsB	Renshaw-Sioux complex, coteau, 2 to 6 percent slopes	Slight	Renshaw (60%)		1.6	0.2%
			Sioux (30%)			
			Fordville (7%)			
			Spottswood, occasionally flooded (3%)			
VrA	Vienna-Brookings complex, 0 to 2 percent slopes	Slight	Vienna (65%)		26.1	4.0%
			Brookings (25%)			
			Badger (4%)			
			Mckranz (4%)			
			Estelline (1%)			
			Tonka, undrained (1%)			
VtB	Vienna-Brookings complex, 1 to 6 percent slopes	Moderate	Vienna (70%)	Surface kw times slope times R index (0.06)	229.2	35.5%
VwC	Vienna-Buse complex, 6 to 9 percent slopes	Moderate	Vienna (60%)	Surface kw times slope times R index (0.37)	17.2	2.7%
			Buse (30%)	Surface kw times slope times R index (0.37)		
Totals for Area of Interest					**646.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Slight	341.6	52.9%
Moderate	304.3	47.1%
Totals for Area of Interest	**646.0**	**100.0%**

Rating Options—Erosion Hazard (Off-Road, Off-Trail)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Soil Erosion

This folder contains a collection of tabular reports that present soil erosion factors and groupings. The reports (tables) include all selected map units and components for each map unit. Soil erosion factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Deuel County, South Dakota

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BaB—Barnes clay loam, 2 to 6 percent slopes								
Barnes	85	180	C	.20	5	34.0	36.0	30.0
BcB—Barnes-Buse loams, coteau, 2 to 6 percent slopes								
Barnes	60	180	C	.24	5	34.0	42.0	24.0
Buse	30	—	C	.28	5	34.0	42.0	24.0

RUSLE2 Related Attributes–Deuel County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BcE—Barnes-Buse loams, 15 to 25 percent slopes								
Barnes	50	49	C	.24	5	34.0	42.0	24.0
Buse	35	—	C	.28	5	34.0	42.0	24.0
BgD—Barnes-Buse-Svea loams, 2 to 15 percent slopes								
Barnes	40	98	C	.24	5	34.0	42.0	24.0
Buse	30	—	C	.28	5	34.0	42.0	24.0
Svea	20	—	C	.20	5	34.0	42.0	24.0
BmC—Barnes-Svea-Buse loams, 2 to 9 percent slopes								
Barnes	40	131	C	.24	5	34.0	42.0	24.0
Svea	25	—	C	.20	5	34.0	42.0	24.0
Buse	20	—	C	.28	5	34.0	42.0	24.0
BnD—Barnes, stony-Svea-Buse, stony loams, 2 to 12 percent slopes								
Barnes, stony	50	141	C	.24	5	34.0	42.0	24.0
Svea	25	—	C	.20	5	34.0	42.0	24.0
Buse, stony	20	—	C	.28	5	34.0	42.0	24.0
BxE—Buse-Lamoure, channeled, complex, 0 to 40 percent slopes								
Buse	50	—	C	.24	5	39.8	37.7	22.5
Lamoure, channeled	30	—	B/D	.20	5	6.7	62.8	30.5
Hm—Hamerly-Badger complex, 0 to 2 percent slopes								
Hamerly	65	200	C/D	.24	5	34.0	42.0	24.0
Badger	25	—	C/D	.32	5	7.0	64.0	29.0
KrA—Kranzburg-Brookings silty clay loams, 0 to 2 percent slopes								
Kranzburg	65	200	C	.32	5	7.0	64.0	29.0
Brookings	25	—	C	.28	5	7.0	64.0	29.0
KrB—Kranzburg-Brookings silty clay loams, 1 to 6 percent slopes								
Kranzburg	70	180	C	.32	5	7.0	64.0	29.0
Brookings	20	180	C	.28	5	7.0	64.0	29.0
Lr—Lamoure-Rauville silty clay loams, channeled								
Lamoure, channeled	60	—	B/D	.20	5	6.7	62.8	30.5
Rauville	25	—	B/D	.20	5	6.7	62.3	31.0

RUSLE2 Related Attributes–Deuel County, South Dakota								
Map symbol and soil name	**Pct. of map unit**	**Slope length (ft)**	**Hydrologic group**	**Kf**	**T factor**	**Representative value**		
						% Sand	**% Silt**	**% Clay**
Mn—McIntosh-Lamoure silty clay loams								
McIntosh	65	—	C	.28	5	7.1	65.4	27.5
Lamoure	25	—	B/D	.24	5	6.7	62.8	30.5
PwB—Poinsett-Waubay silty clay loams, 1 to 6 percent slopes								
Poinsett	65	180	C	.32	5	7.0	64.0	29.0
Waubay	25	180	C	.28	5	7.0	64.0	29.0
RsB—Renshaw-Sioux complex, coteau, 2 to 6 percent slopes								
Renshaw	60	180	B	.20	2	42.0	37.0	21.0
Sioux	30	180	B	.28	2	45.0	40.0	15.0
VrA—Vienna-Brookings complex, 0 to 2 percent slopes								
Vienna	65	200	C	.37	5	7.0	68.0	25.0
Brookings	25	—	C	.28	5	7.0	64.0	29.0
VtB—Vienna-Brookings complex, 1 to 6 percent slopes								
Vienna	70	180	C	.37	5	7.0	68.0	25.0
Brookings	20	180	C	.28	5	7.0	64.0	29.0
VwC—Vienna-Buse complex, 6 to 9 percent slopes								
Vienna	60	—	C	.28	5	21.3	54.7	24.0
Buse	30	—	C	.28	5	39.8	37.7	22.5

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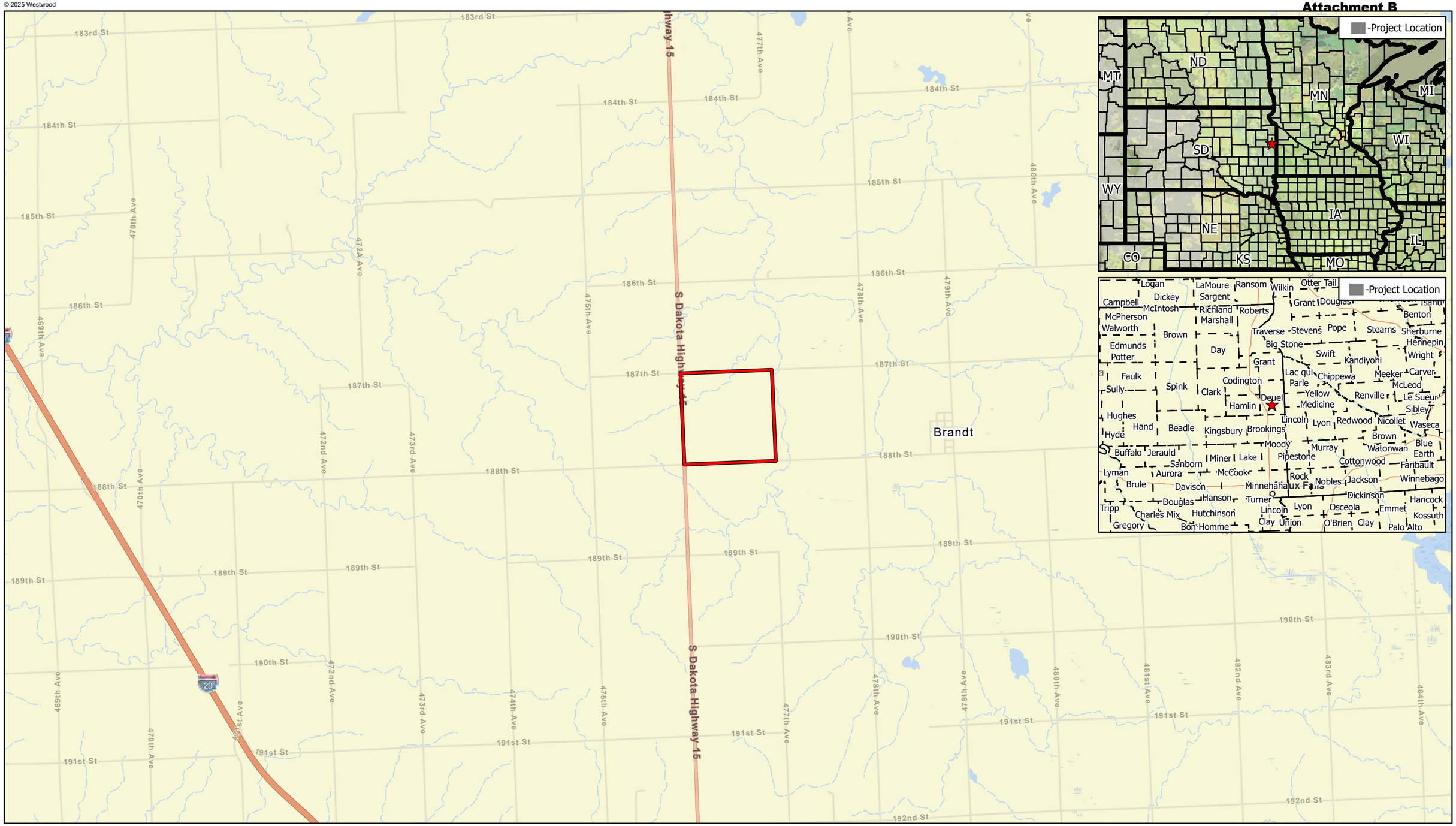
Appendix D

Pre and Post Drainage Maps, Impaired Water Maps

Attachment B



Data Source(s): Westwood (2025); Esri WMS Basemap Imagery (Accessed 2025); USGS (2025); FEMA (2025); USDA (2025)

Legend

- Project Boundary
- County Boundary

Westwood
Toll Free (888) 937-5150 westwoodps.com

N

0 0.5 1 Miles

South Deuel Wind

Deuel County, SD

Vicinity Map

July 16, 2025

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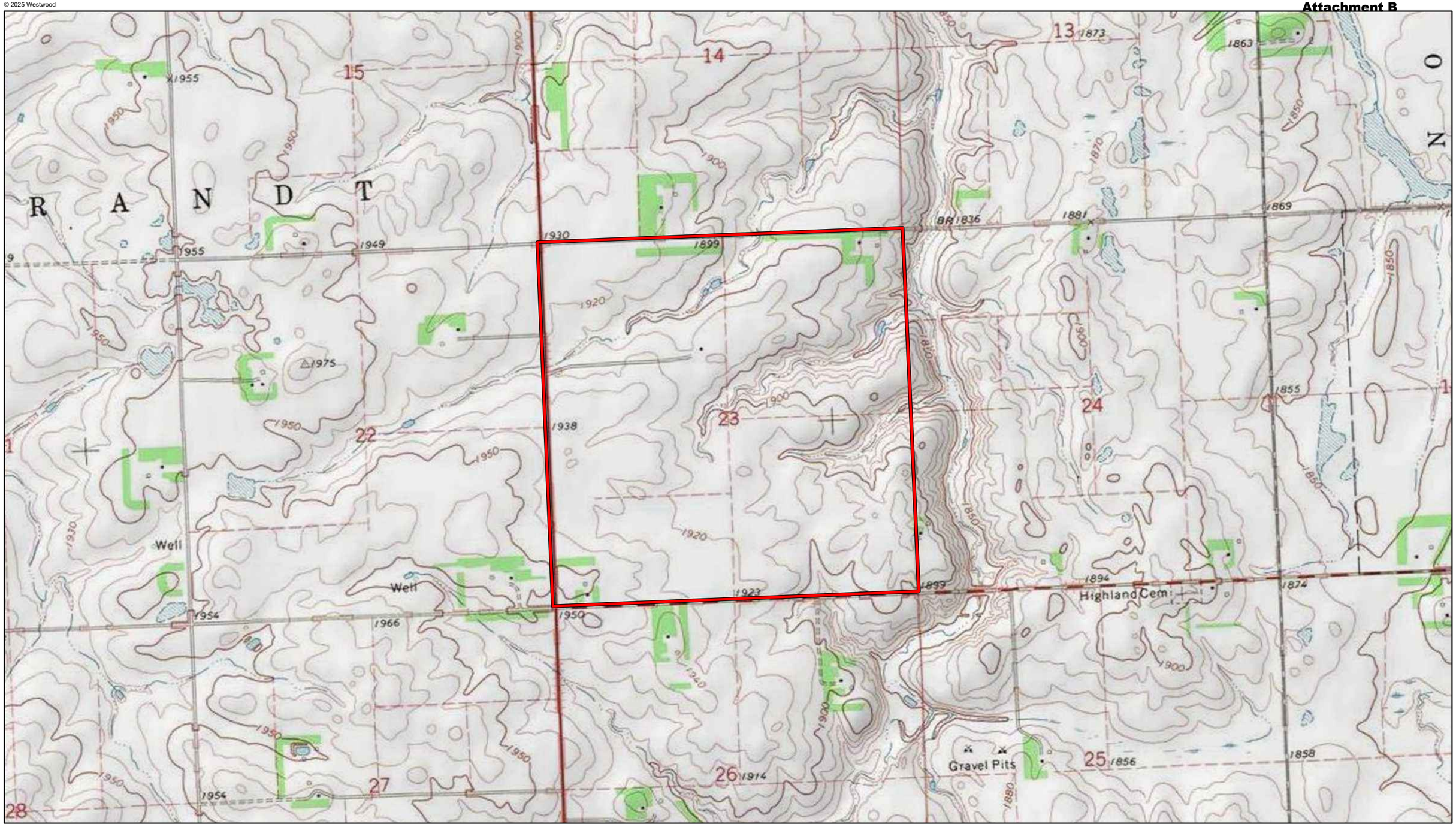
Vicinity Map - Vicinity Map | 7/16/2025 10:05 AM | EKeith



Data Source(s): Westwood (2025); Esri WMS Basemap Imagery (Accessed 2025); USGS (2025); FEMA (2025); USDA (2025)

Westwood
Toll Free (888) 937-5150 westwoodps.com

Legend

- Project Boundary
- County Boundary

N

0 0.125 0.25 Miles

South Deuel Wind

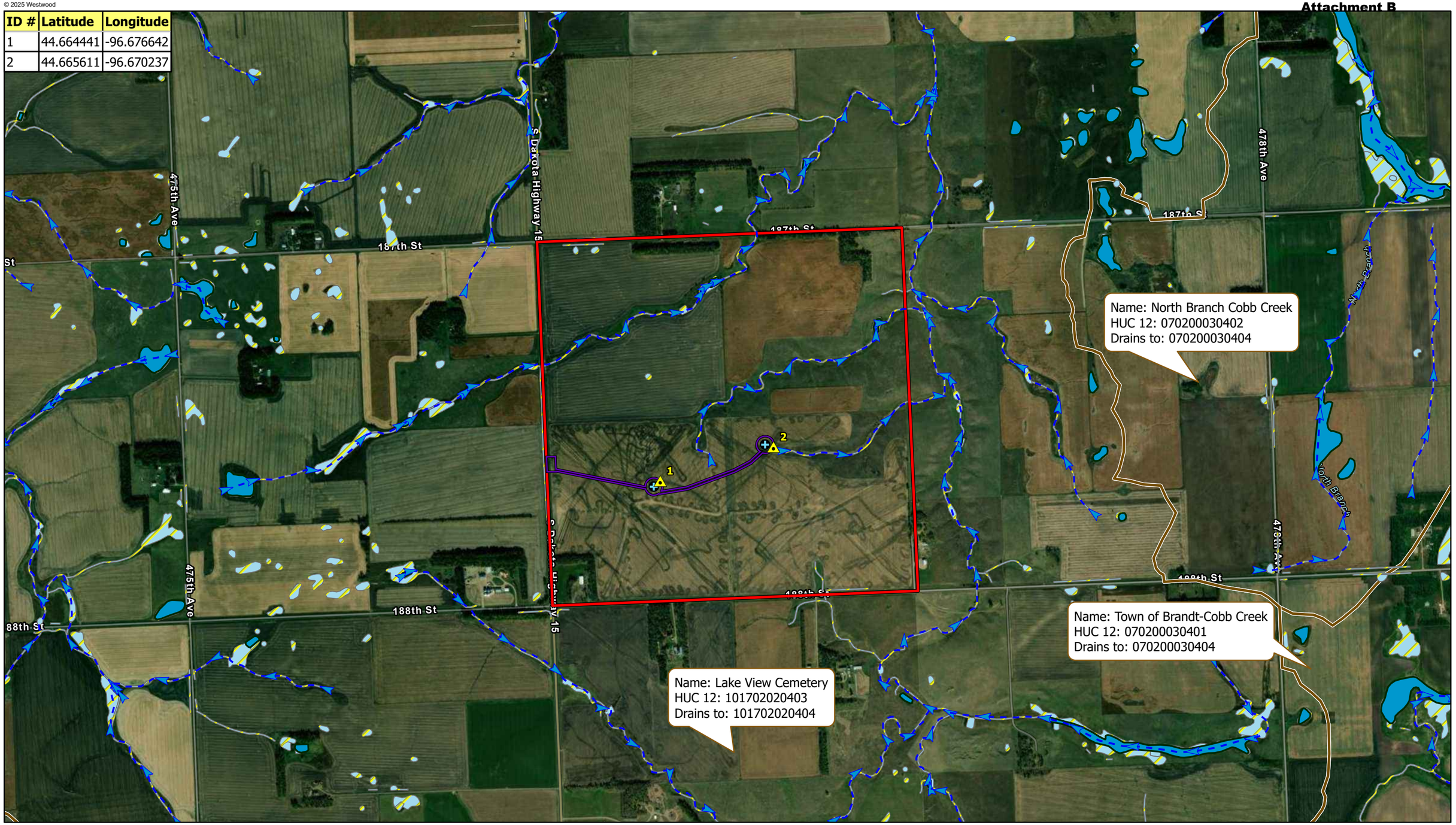
Deuel County, SD

USGS Topographic Map

July 16, 2025

Attachment B

ID #	Latitude	Longitude
1	44.664441	-96.676642
2	44.665611	-96.670237



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Westwood
Toll Free (888) 937-5150 westwoodps.com

Legend

- Discharge Locations
- Mud Mats
- NHD Flowlines
- Disturbance Limits
- Project Boundary
- NHD Waterbodies
- NWI Wetlands
- HUC12 Boundary
- County Boundary

N

0 0.125 0.25 Miles

South Deuel Wind

Deuel County, SD

Drainage Map

July 16, 2025

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Drainage Map - Drainageflag | 7/16/2025 10:06 AM | Elezin

Appendix E

Site Plans, Erosion and Sediment Control Plans, Details

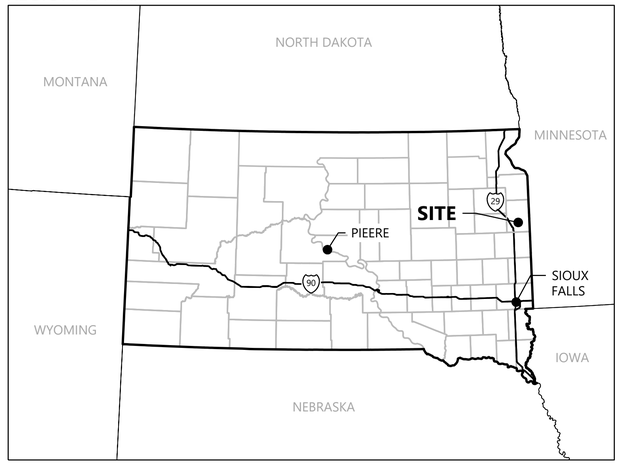
Know what's below. Call before you dig.

South Deuel Wind Project

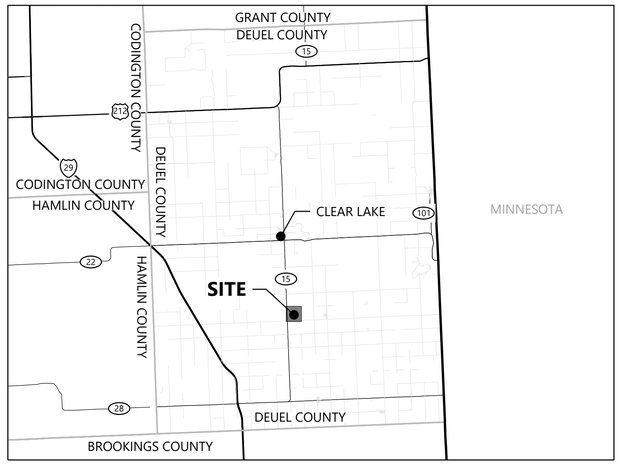
Deuel County, South Dakota

Civil Construction Plans

REGIONAL MAP



VICINITY MAP



Sheet List Table	
SHEET NUMBER	SHEET TITLE
C001	Cover Sheet
C301	Site Plan T-37, T-38
C700	Construction Details
C701	Construction Details
C702	Construction Details
C703	Construction Notes
C704	Erosion and Sediment Control Notes

DATA SET INFORMATION			
Coordinate System	NSRS 2011 South Dakota State Plane, North Zone, US Foot		
BASE FILE	**FILE NAME / NOTES**	**PROVIDER**	**DATE**
AERIAL IMAGE	*	*	*
LAND CONTROL	*	*	*
ALTA SURVEY	*	*	*
TOPOGRAPHY	0069745V-DTM.dwg	The National Map	6/24/2025
TURBINE ARRAY	SDeuel_primarymudmats_20250611.kmz	Invenergy	6/12/2025
UNDERGROUND COLLECTION	*	*	*
GEN-TIE	*	*	*
STREAMS/WETLANDS	DeuelSouth_Wetlands_20230807.shp	Invenergy	6/12/2025

CONTACT INFORMATION			
PROJECT ROLE	CONTACT NAME	COMPANY	PHONE
Principal Project Manager	Eric Guenther	Invenergy	(312) 761-8167
Project Manager	Steve Battaglia	Westwood	(952) 906-7405
Engineer of Record	Dave Keleher	Westwood	(952) 906-7409
Site Design Lead	Gabbie Nauta	Westwood	(972) 235-3031

Attachment B

Westwood

Phone (214) 473-4640
Toll Free (888) 937-5150
2805 North Dallas Parkway, Suite 150
Plano, TX 75093
westwoodps.com

Westwood Professional Services, Inc.
South Dakota Firm Registration Number: C-1000

PROFESSIONAL ENGINEER REG. NO. 17360 DAVID J. KELEHER SOUTH DAKOTA 7/15/25

PREPARED FOR:

Invenergy

One South Wacker Drive, Suite 1500
Chicago, IL 60606

REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
0	07/15/2025	ISSUED FOR PTC CONSTRUCTION	AF	SL	GN

South Deuel Wind Project
Deuel County, South Dakota

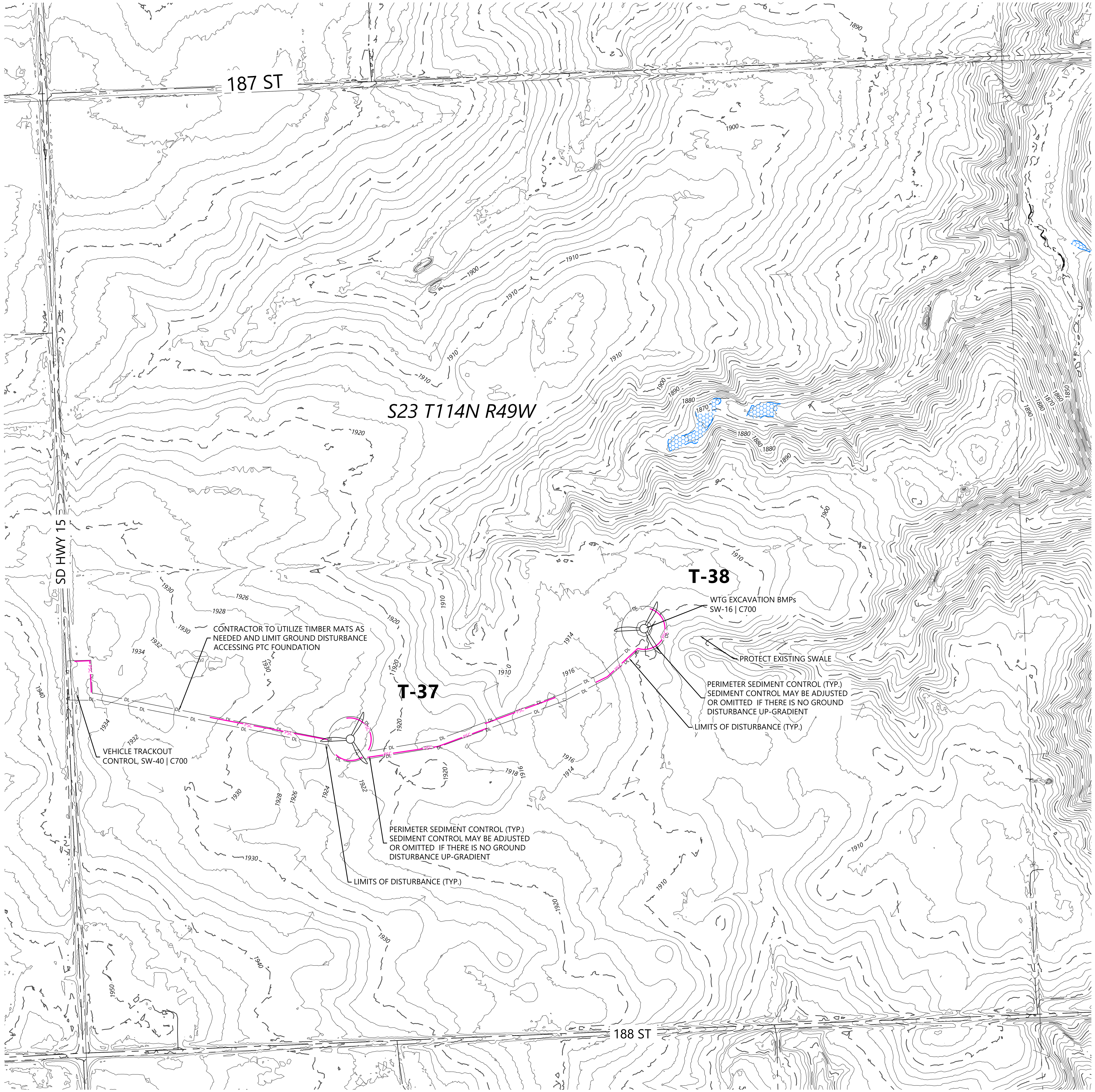
Cover Sheet

ISSUED FOR CONSTRUCTION

DATE: 07/15/2025

SHEET: C001

REV: 0



LEGEND:

EXISTING:

- SECTION LINES
- INDEX CONTOUR
- INTERVAL CONTOUR
- DRAINAGE DIRECTION
- WETLAND (DELINEATED)
- WATERCOURSE LINE
- EXISTING ROAD CENTERLINE

PROPOSED:

- ## PTC FOUNDATION LOCATION
- NON-PARTICIPATING LAND
- DISTURBANCE LIMITS
- PERIMETER SEDIMENT CONTROL
- ALTERNATE DISTURBANCE LIMITS

EROSION AND SEDIMENT CONTROL NOTES:

1. REFER TO THE CONSTRUCTION STORMWATER PERMIT, THE STORMWATER MANAGEMENT PLAN (SWPPP), AND SHEET C704 FOR ADDITIONAL INFORMATION
2. BEST MANAGEMENT PRACTICES (BMPS) INCLUDING PERIMETER SEDIMENT CONTROLS (PSC), TEMPORARY AND PERMANENT STABILIZATION OF DISTURBED SOILS, AND CONSTRUCTION PHASING SHALL BE IMPLEMENTED AS SPECIFIED IN THE SWPPP AND WITHIN THE APPLICABLE TIMEFRAMES.
3. QUALIFIED, TRAINED, AND KNOWLEDGEABLE PERSONNEL SHALL BE PRESENT ON-SITE TO MANAGE THE IMPLEMENTATION OF BMPS, INSPECTIONS, AND COMPLIANCE.
4. SELECT BMP LOCATIONS ARE SHOWN ON THE PLANS. FIELD ADJUSTMENTS, ALTERNATIVES, OR ADDITIONAL BMPS MAY BE IMPLEMENTED TO ALIGN WITH THE CONTRACTOR'S MEANS AND METHODS. FIELD CONDITIONS, INSPECTIONS, AND ACTIVE CONSTRUCTION ACTIVITIES. MULTIPLE APPLICATIONS MAY BE NECESSARY
5. REFER TO SHEET C700-702 FOR TYPICAL BMP APPLICATIONS INCLUDING:
   - 5.1. PERIMETER SEDIMENT CONTROLS (PSC) ALONG CONSTRUCTION PERIMETER
   - 5.2. SOIL STABILIZATION OF DISTURBED SOIL AREAS
   - 5.3. CHANNEL STABILIZATION OF CONCENTRATED FLOW AREAS

Turbine Index - South Deuel PTC				
Turbine ID	Latitude	Longitude	Northing	Easting
T-37	N044°39'51.21"	W096°40'37.25"	320662.21	2832830.92
T-38	N044°39'56.56"	W096°40'14.51"	321271.22	2834451.03

Attachment B

Westwood

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westwoodps.com

Westwood Professional Services, Inc.
South Dakota Firm Registration Number: C-1000

PROFESSIONAL ENGINEER REG. NO. 17360 DAVID KELEHER SOUTH DAKOTA 7/15/25

PREPARED FOR:

Invenergy

One South Wacker Drive, Suite 1500
Chicago, IL 60606

REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
0	07/15/2025	ISSUED FOR PTC CONSTRUCTION	AF	SL	GN

0' 300' 600' 900'

South Deuel Wind Project

Deuel County, South Dakota

Site Plan T-37, T-38

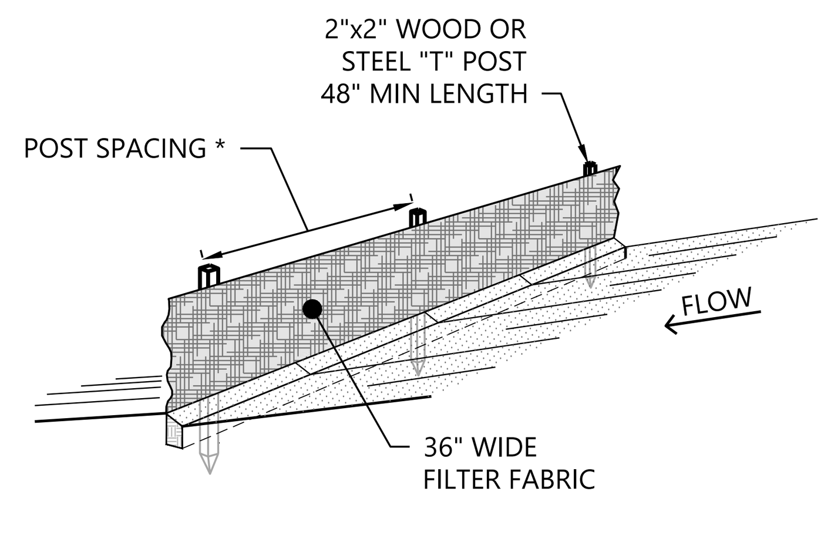
ISSUED FOR CONSTRUCTION

DATE: 07/15/2025

SHEET: C301

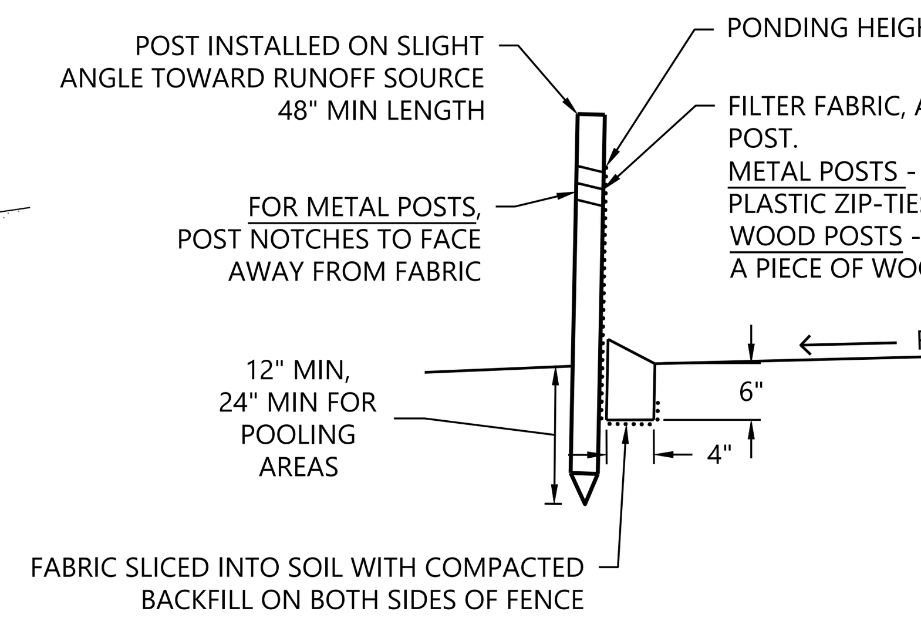
REV: 0

Attachment B

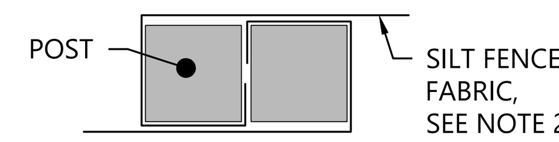


* 6' MAX FOR OPEN RUNS
4' MAX FOR POOLING AREAS

PERSPECTIVE VIEW



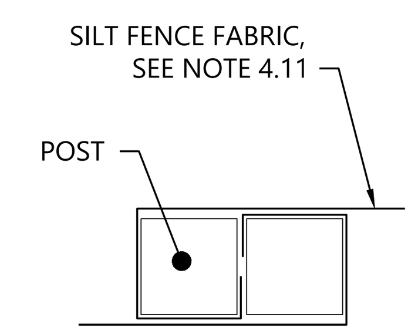
POST AND TRENCH DETAIL



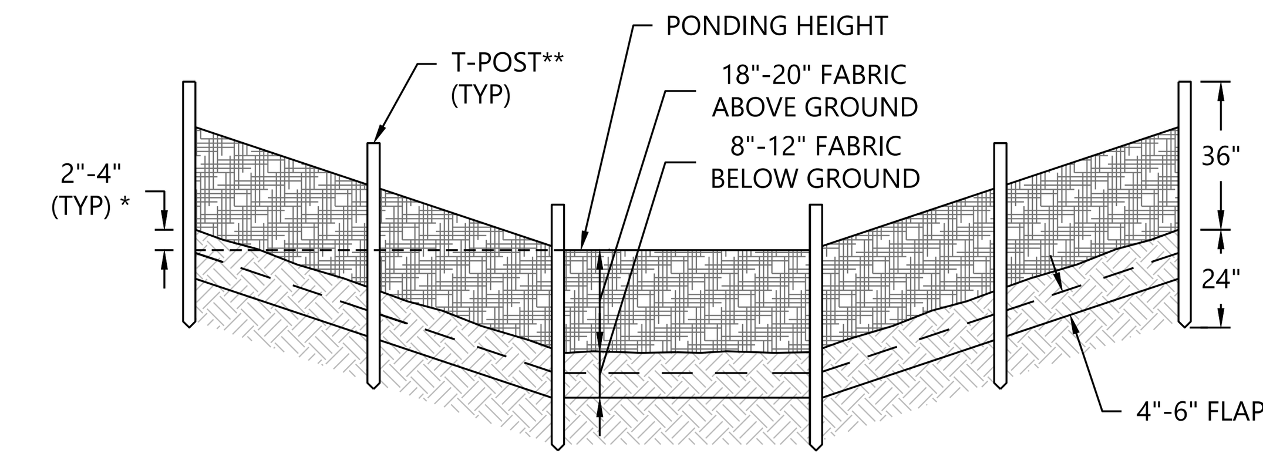
TOP VIEW - JOINT DETAIL

NOTES:

1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC WIDTH SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN 2 , ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NO. 30.
2. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST. WHERE FABRIC ENDS MEET, WRAP AND TWIST THE FABRIC AROUND THE POST FOR A SECURE CONNECTION.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".
5. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO **1/3 HEIGHT** OF THE FABRIC OR MORE.
6. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
7. SILT FENCE SHOULD REMAIN IN PLACE AND MAINTAINED UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED.
8. INSTALL A SECOND ROW OF SILT FENCE APPROXIMATELY 5' FROM INITIAL ROW WHEN REDUNDANT PROTECTION IS REQUIRED WITHIN 50' OF WETLANDS AND STREAMS.
9. AVOID SPLICED SECTIONS IN LOW LYING (LOAD BEARING) LOCATIONS.



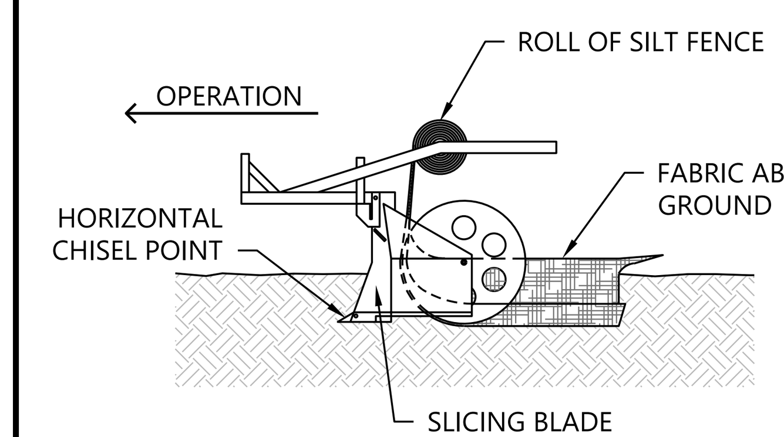
TOP VIEW - JOINT DETAIL



**ALTERNATE POST OPTION: 2"x2" WOOD POST, SECURE FABRIC BETWEEN WOOD POST AND A PIECE OF WOODEN LATHE WITH HEAVY DUTY STAPLES.

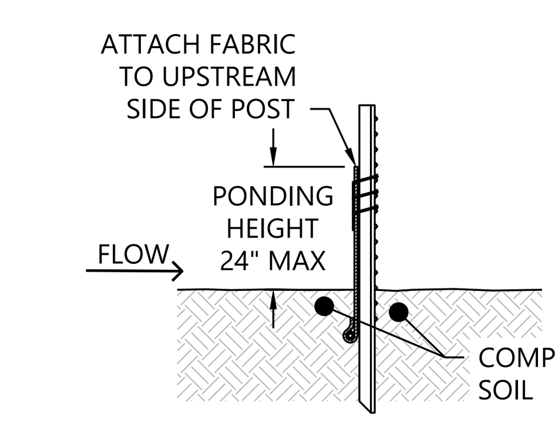
* THE BASE OF BOTH END POSTS MUST BE 2"-4" ABOVE THE FABRIC ON THE MIDDLE POSTS FOR ALL THE SILT FENCE TO PROPERLY DRAIN.

ELEVATION VIEW



- VIBRATORY PLOW IS NOT ACCEPTABLE BECAUSE OF HORIZONTAL COMPACTION.
- NO MORE THAN 24" OF A 36" FABRIC IS ALLOWED ABOVE GROUND.

FABRIC INSTALLATION



- COMPACT GROUND PRIOR TO POST INSTALLATION. BEGIN WITH UPSLOPE SIDE, DRIVE OVER EACH SIDE OF THE SILT FENCE 2 TO 4 TIMES WITH DEVICE EXERTING 60 PSI OR GREATER

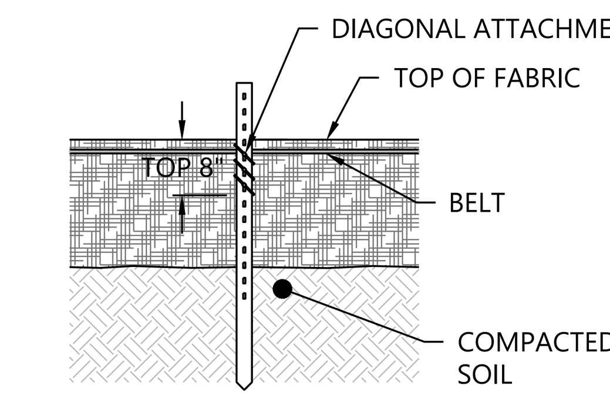
POST SPACING:

- 6' MAX. ON OPEN RUNS
- 4' MAX. ON POOLING AREAS

POST DEPTH:

- 24" MIN. BELOW GRADE

COMPACTION AND POST INSTALLATION



- GATHER FABRIC AT POSTS, IF NEEDED.
- UTILIZE THREE TIES PER POST WITHIN TOP 8" OF FABRIC.
- POSITION EACH TIE DIAGONALLY, PUNCTURING HOLES VERTICALLY AT A MINIMUM OF 1" APART.
- HANG EACH TIE ON A POST NOTCH AND TIGHTEN SECURELY. USE CABLE TIES (50 LBS TENSILE STRENGTH).

ATTACHMENT DETAILS

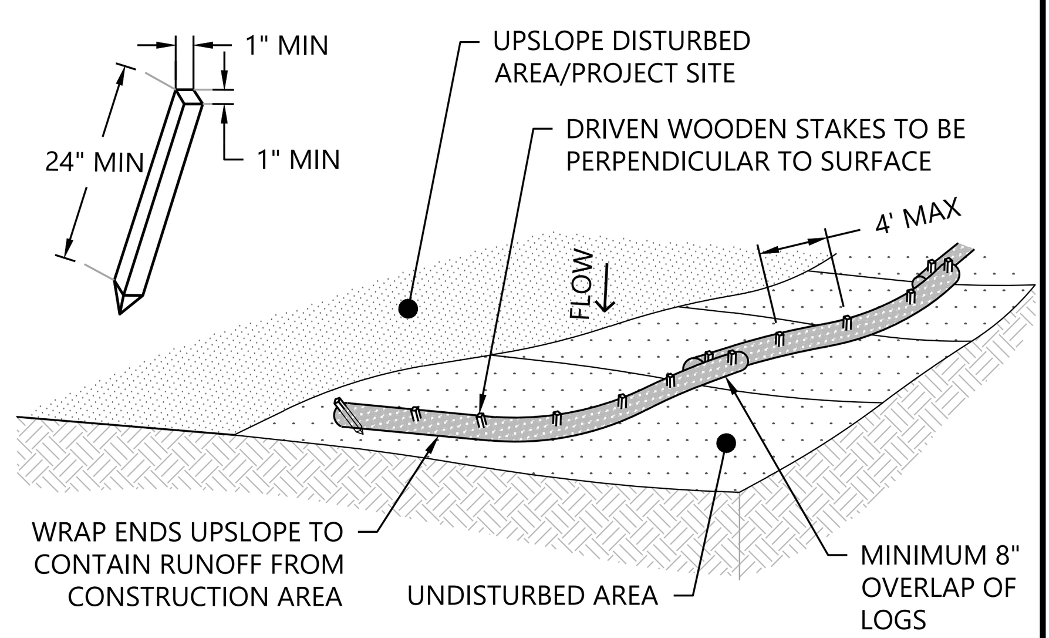
NOTES:

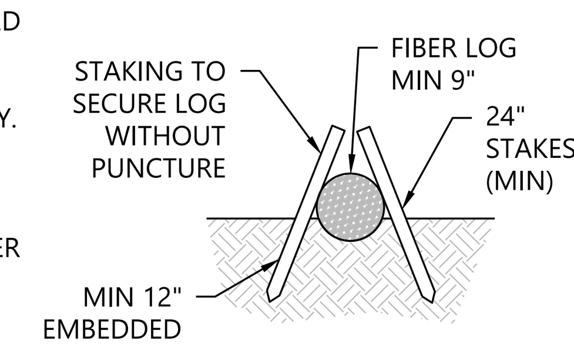
1. SILT FENCE IS USED TO PROVIDE PERIMETER SEDIMENT CONTROL ON THE DOWN-GRADIENT SIDE OF DISTURBANCE.
2. SILT FENCE SHALL BE INSTALLED PRIOR TO DISTURBANCE.
3. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC WIDTH SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN 2 , ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NO. 30.
4. SILT FENCE SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. WHEN NOT AVAILABLE INSTALL ACCORDING TO THIS DETAIL AND THE FOLLOWING NOTES:
   - 4.1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
   - 4.2. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE BASE OF BOTH END POSTS WILL BE AT LEAST 2"-4" ABOVE THE TOP OF THE SILT FENCE FABRIC ON THE MIDDLE OR LOWEST POSTS ("PONDING HEIGHT").
   - 4.3. NO MORE THAN 24" OF A 36" FABRIC IS ALLOWED ABOVE GROUND LEVEL.
   - 4.4. THE INSTALLATION SHOULD BE CHECKED AND CORRECTED FOR ANY DEVIATIONS BEFORE COMPACTION. USE A FLAT-BLADED SHOVEL TO TUCK FABRIC DEEPER INTO THE SLIT IF NECESSARY.
   - 4.5. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE FABRIC WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEAST 60 POUNDS PER SQUARE INCH. COMPACT THE UPSTREAM SIDE FIRST, AND THEN EACH SIDE TWICE FOR A TOTAL OF FOUR TRIPS.
   - 4.6. INSTALL POSTS 3'-4' APART IN PONDING/CRITICAL WATER RETENTION AREAS AND 6' APART ON STANDARD APPLICATIONS.
   - 4.7. INSTALL POSTS 24" DEEP ON THE DOWNSTREAM SIDE OF THE SILT FENCE, AND AS CLOSE AS POSSIBLE TO THE FABRIC.
   - 4.8. INSTALL POSTS WITH THE NOTCHES FACING AWAY FROM THE SILT FENCE FABRIC.
   - 4.9. ATTACH THE FABRIC TO EACH POST WITH THREE TIES, ALL SPACED WITHIN THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1" VERTICALLY APART. EACH TIE SHOULD BE POSITIONED TO HANG ON A POST NOTCH WHEN TIGHTENED TO PREVENT SAGGING.
   - 4.10. WRAP APPROXIMATELY 6" OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.
   - 4.11. WHERE FABRIC ENDS MEET, WRAP AND TWIST THE FABRIC AROUND THE POST FOR A SECURE CONNECTION.
5. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO **1/3 HEIGHT** OF THE FABRIC OR MORE.
6. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
7. SILT FENCE SHOULD REMAIN IN PLACE AND MAINTAINED UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED.
8. INSTALL A SECOND ROW OF REINFORCED SILT FENCE APPROXIMATELY 5' FROM INITIAL ROW WHEN REDUNDANT PROTECTION IS REQUIRED WITHIN 50' OF WETLANDS AND STREAMS.
9. AVOID SPLICED SECTIONS IN LOW LYING (LOAD BEARING) LOCATIONS.

Westwood | SILT FENCE - MACHINE SLICED | NOT TO SCALE | SW-12

NOTES:

1. FIBER LOGS SHALL BE INSTALLED PRIOR TO UPSLOPE DISTURBANCE ACTIVITIES COMMENCE.
2. FIBER LOGS SHALL BE PREFABRICATED AND MADE FROM CERTIFIED STRAW, WOOD, COCONUT FIBER, OR SIMILAR AGRICULTURAL MATERIAL BOUND INTO A TIGHT TUBULAR LOG BY NETTING. USE A 9" DIA. LOG MINIMUM.
3. TRENCHES SHALL BE CREATED ALONG THE SLOPE OF THE PERIMETER. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE LOG, AND THE WIDTH SHOULD EQUAL THE LOG DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.
4. STAKE FIBER LOGS INTO THE TRENCH. DRIVE STAKES AT THE END OF EACH FIBER LOG AND SPACED 4 FEET MAXIMUM ON CENTER. USE HARD WOOD STAKES WITH NOMINAL CLASSIFICATION OF AT LEAST 1" BY 1" AND A MINIMUM LENGTH OF 24". STAKES SHALL BE EMBEDDED A MINIMUM DEPTH OF 12".
5. LOGS SHALL BE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
6. TURN THE ENDS OF THE FIBER LOGS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE LOG. THE UPSLOPE POINT SHOULD BE A MINIMUM 12" HIGHER IN ELEVATION THAN THE LOW POINT.
7. IF MORE THAN ONE FIBER LOG IS PLACED IN A ROW, THE LOGS SHOULD BE OVERLAPPED A MINIMUM OF 8 INCHES, NOT ABUTTED.
8. FIBER LOGS ENCASED WITH PLASTIC NETTING ARE USED FOR A TEMPORARY APPLICATION ONLY AND SHOULD BE REMOVED FOLLOWING STABILIZATION. FIBER LOGS USED IN A PERMANENT APPLICATION SHALL BE ENCASED WITH A BIODEGRADABLE MATERIAL AND MAY BE LEFT IN.
9. TEMPORARY INSTALLATIONS SHOULD ONLY BE REMOVED WHEN UP GRADIENT AREAS ARE STABILIZED PER GENERAL PERMIT REQUIREMENTS, AND/OR POLLUTANT SOURCES NO LONGER PRESENT A HAZARD. BUT, THEY SHOULD ALSO BE REMOVED BEFORE VEGETATION BECOMES TOO MATURE SO THAT THE REMOVAL PROCESS DOES NOT DISTURB MORE SOIL AND VEGETATION THAN IS NECESSARY.
10. FIBER LOGS MUST BE INSPECTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS FOR THE ASSOCIATED PROJECT TYPE AND RISK LEVEL.
11. REPAIR OR REPLACE SPLIT, TORN, UNRAVELING, OR SLUMPING FIBER LOGS.
12. SEDIMENT THAT ACCUMULATES UPSLOPE OF THE BMP SHOULD BE PERIODICALLY REMOVED IN ORDER TO MAINTAIN BMP EFFECTIVENESS. REFER TO CONSTRUCTION GENERAL PERMIT FOR SEDIMENT ACCUMULATION MAINTENANCE INTERVALS.
13. RILL, UNDERMINING, AND/OR GULLIES MAY BEGIN TO FORM FOLLOWING MAJOR STORM EVENTS WHERE RUNOFF HAS OVERTOPPED THE FIBER LOGS. THESE RILLS OR GULLIES SHOULD BE PROMPTLY REPAIRED.





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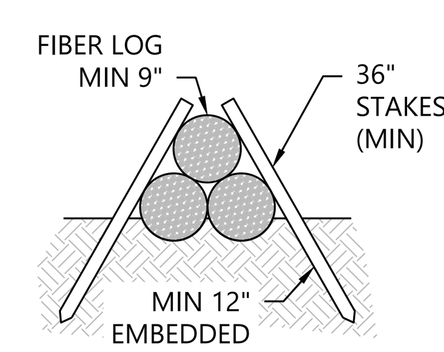
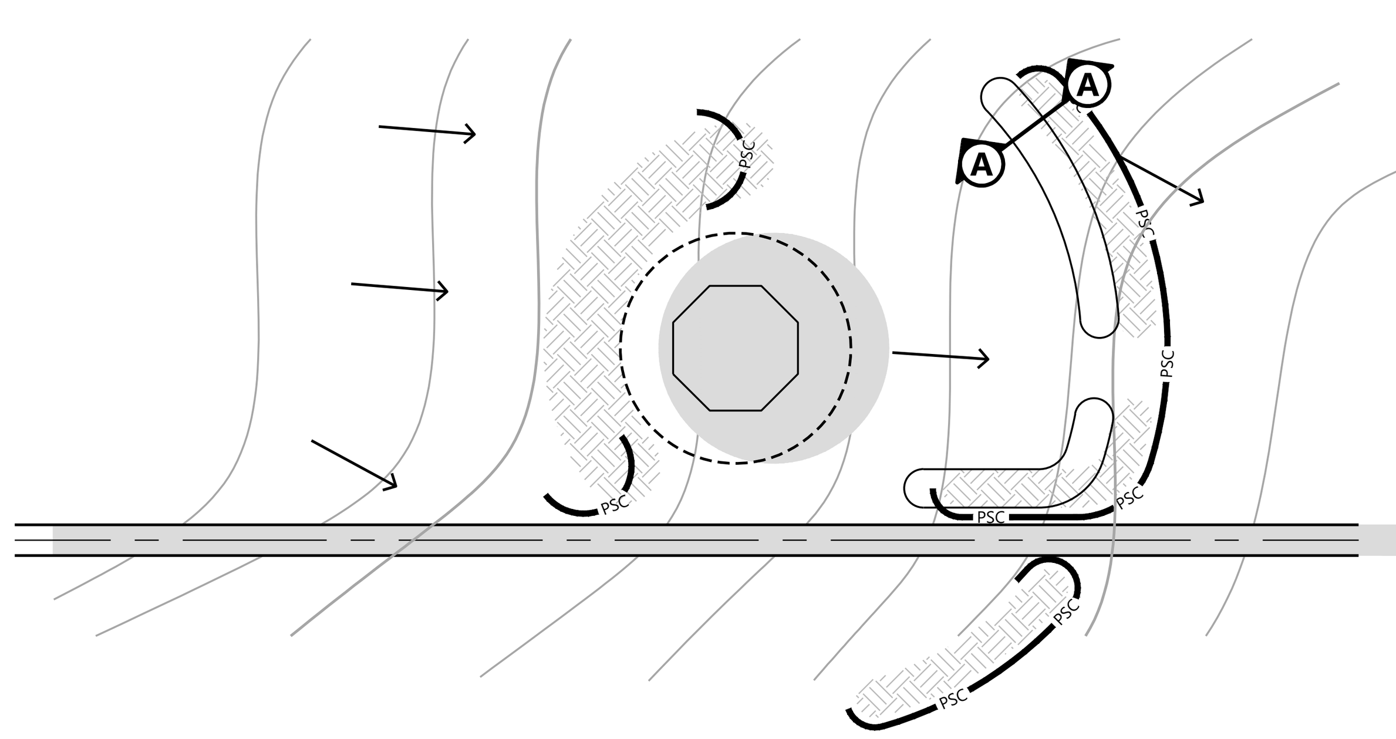


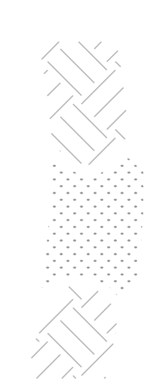
STACKING METHOD

Westwood | PERIMETER SEDIMENT CONTROL - FIBER LOGS | NOT TO SCALE | SW-13



PLAN VIEW

SECTION A-A



STACKED FIBER LOG OUTLET

NOTES:

1. REFER TO NPDES PERMIT FOR SPECIFICATIONS OF EROSION AND SEDIMENT CONTROL MEASURES.
2. REDUNDANT PERIMETER SEDIMENT CONTROL IS REQUIRED WITHIN 50' OF WETLANDS AND STREAMS.
3. TERMINAL ENDS OF TOPSOIL BERM SHOULD BE HIGHER IN ELEVATION THAN THE TOP OF BERM.
4. MULTIPLE STACKED FIBER LOG OUTLETS MAY BE NEEDED, CONTRACTOR TO FIELD FIT AS NECESSARY. STACKED FIBER LOGS ARE OPTIONAL TO MINIMIZE WATER ACCUMULATION WITHIN PAD AREA.
5. TEMPORARY STABILIZATION FOR STOCKPILES MAY CONSIST OF HYDROMULCH, SOIL STABILIZER, OR TACKIFIER.
6. PERIMETER SEDIMENT CONTROL MAY CONSIST OF SILT FENCE, FIBER LOGS, OR WOOD MULCH BERMS. REFER TO APPROPRIATE DETAIL FOR INSTALLATION REQUIREMENTS. LOCATION OF PERIMETER SEDIMENT CONTROL MAY VARY DEPENDING UPON THE TERRAIN AT THE TURBINE SITE.
7. ALTERNATE BERM PLACEMENT OPTION - PLACE TOPSOIL BERM ALONG THE UP-GRADIENT PERIMETER. THIS WILL ACT AS A DIVERSION BERM TO ROUTE RUN-ON FLOWS AROUND THE PAD. INSTALL PERIMETER SEDIMENT CONTROL ALONG THE DOWN-GRADIENT SIDE OF THE PAD.
8. EROSION CONTROL BEST PRACTICES TO BE APPLIED TO ALL DISTURBED SOILS BETWEEN AND DOWNGRADIENT OF THE STACKED FIBER LOGS. STABILIZE GROUND BETWEEN THE STACKED FIBER LOGS WITH STRAW OR EROSION CONTROL BLANKET FOR STEEPER SLOPES, GREATER THAN OR EQUAL TO 3:1.

Westwood | TURBINE SITE - TOPSOIL BERM WITH STACKED FIBER LOG OUTLET | NOT TO SCALE | SW-16

Westwood

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REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
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South Deuel Wind Project

Deuel County, South Dakota

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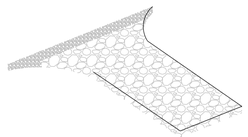

Westwood	VEHICLE TRACKOUT CONTROL - ROCK EXIT NOT TO SCALE	SW-40

Attachment B

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South Deuel Wind Project

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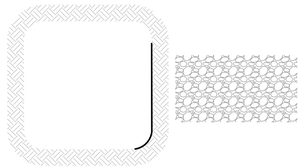
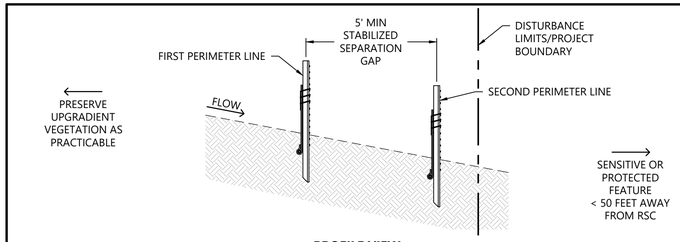


NOTES:

1. CONCRETE WASHOUT AREAS SHALL BE LINED WITH A 10 MIL PLASTIC IMPERMEABLE LINER TO PREVENT CONCRETE WASHOUT WATER FROM INFILTRATING/CONTACTING WITH SOIL.
2. PROVIDE STABILIZED CONSTRUCTION ACCESS IF SEDIMENT TRACKING CONTROLS ARE NECESSARY.
3. ALTERNATE WASHOUT SYSTEMS MAY BE USED IF APPROVED.
4. REFER TO PROJECT NPDES PERMIT FOR ADDITIONAL CONSTRUCTION, MAINTENANCE, AND REMOVAL REQUIREMENTS

Westwood	CONCRETE WASHOUT AREA NOT TO SCALE	SW-60



PROFILE VIEW

NOTES:

1. REDUNDANT PERIMETER SEDIMENT CONTROL (RSC) IS REQUIRED TO BE USED WHEN SOIL DISTURBANCE ACTIVITIES TAKE PLACE WITHIN THE 50' BUFFER OF A SENSITIVE OR PROTECTED FEATURE.
2. THE FIRST LINE (NEAREST THE LAND DISTURBANCE) OF PERIMETER SEDIMENT CONTROL SHOULD BE THE MOST ROBUST TO CONTAIN THE LARGEST LOAD OF DEBRIS, SEDIMENT AND SLOUGH IMPACTS.
3. THE TYPES OF REDUNDANT PERIMETER SEDIMENT CONTROLS SELECTED IS A FUNCTION OF THE TYPE OF WORK, WORK LIMITS, SLOPE STEEPNESS, SLOPE LENGTH, TIME OF YEAR AND ABILITY TO PROPERLY MAINTAIN AND MAY VARY ACROSS A PROJECT. THE IMAGE ABOVE IS A PICTORIAL REPRESENTATION ONLY, OTHER TYPES OF CONTROLS MAY BE USED.
4. STAGE AND PHASE DISTURBANCE TO THE SHORTEST PRACTICABLE TIME WHEN WORK ACTIVITIES ARE PLANNED NEAR SENSITIVE OR PROTECTED FEATURES.
5. ENSURE STABILIZATION OCCURS WITHIN THE NPDES PERMIT TIMEFRAMES AND AS RAPIDLY AS POSSIBLE NEAR SENSITIVE OR PROTECTED FEATURES.
6. INSPECT AND REPAIR PERIMETER SEDIMENT CONTROLS AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO **1/3 HEIGHT** OF THE CONTROL OR MORE.

Westwood	REDUNDANT PERIMETER SEDIMENT CONTROL NOT TO SCALE	SW-91

Attachment B

Westwood

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REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
0	07/15/2025	ISSUED FOR PTC CONSTRUCTION	AF	SL	GN

South Deuel Wind Project
Deuel County, South Dakota

Construction Details

ISSUED FOR CONSTRUCTION

DATE: 07/15/2025

SHEET: C702

REV: 0

EARTHWORK

1. GENERAL
   a. THIS SECTION DESCRIBES WORK RELATED TO EARTHWORK AND MAY INCLUDE CLEARING AND GRUBBING, EXCAVATIONS, GENERAL FILL AND WORK ASSOCIATED WITH ACCESS TO THE TURBINE EXCAVATION LOCATIONS.
   b. THIS SECTION DOES NOT ADDRESS EARTHWORK ASSOCIATED WITH FOUNDATIONS AND MUD MATS, REFER TO STRUCTURAL DRAWINGS FOR FOUNDATION RELATED WORK.

2. SUBMITTALS
   a. THE FOLLOWING MATERIAL SUBMITTALS ARE REQUIRED FOR REVIEW BY THE CIVIL ENGINEER OF RECORD (EOR) PER SPECIFIC PRODUCT AND PRE-PLACEMENT:
      a.1. ON-SITE BORROW SOURCE
      a.2. IMPORTED FILL MATERIAL
   b. EROSION AND SEDIMENT CONTROL (BMP) PRODUCT SUBMITTALS ARE NOT REQUIRED. REFER TO THE NPDES PERMIT FOR INFORMATION.

3. CONSTRUCTION
   a. CLEARING AND GRUBBING
      a.1. THE CONTRACTOR SHALL NOT CLEAR TREES ON SITE, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING TREES TO BE SAVED. CONTACT EOR IF THERE IS A CONFLICT BETWEEN DISTURBANCE LIMITS AND TREE LINE.
   b. EXCAVATIONS
      b.1. TOPSOIL SHALL BE STRIPPED FROM EXCAVATION AREAS AT A MINIMUM DEPTH OF ±6 INCHES.
      b.2. TOPSOIL SHALL BE STRIPPED, TO THE DEPTH OF THE TOPSOIL, FROM ALL AREAS WITH SUBSOIL CUT/FILL (MASS-GRADING)
      b.3. TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED DISTURBANCE AREAS.
   c. SEEDING, MULCHING, AND STABILIZATION
      c.1. PRIOR TO FINAL STABILIZATION, TOPSOIL SHALL BE DISTRIBUTED OVER THE EXPOSED DISTURBED AREAS, EXCLUDING THE AGGREGATE DRIVING SURFACE.
      c.2. FOLLOWING ROUGH GRADING OPERATIONS, TOPSOIL CAN BE USED TO BRING THE GROUND ELEVATIONS UP TO THE DESIGNED FINISHED GRADE ELEVATIONS IN NON-STRUCTURAL AREAS.
      c.3. ALL DISTURBED AREAS SHALL HAVE TEMPORARY AND PERMANENT STABILIZATION MEASURES ESTABLISHED IN ACCORDANCE WITH THE NPDES PERMIT.

GENERAL NOTES

1. CONSTRUCTION PLANS ARE BASED OFF THE COORDINATE SYSTEM NSRS (2011) SOUTH DAKOTA STATE PLANES , NORTH ZONE, US FOOT.
2. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE OWNER SHALL BE NOTIFIED AND ARE NOT TO BE REMOVED WITHOUT PERMISSION FROM THE OWNER. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
3. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONSTRUCTION ACTIVITIES SHALL NOT BLOCK THE NATURAL DRAINAGE SWALES CAUSING RAINWATER TO POND. IF CULVERTS ARE NEEDED, THE CIVIL ENGINEER MUST BE CONTACTED FOR APPROPRIATE SIZING OF STRUCTURE. WHEN INSTALLING DRAINAGE CROSSINGS, THE CONTRACTOR SHALL USE JUDGMENT IN SETTING THE FLOW LINE ELEVATIONS TO PROVIDE POSITIVE DRAINAGE. WHEN POSSIBLE, ALL CULVERTS SHOULD BE PLACED AT A MINIMUM 0.5% GRADE.
4. ANY FACILITIES REMOVED TO ALLOW FOR CONSTRUCTION (MAILBOXES, SIGNS, FENCES, ETC.) SHALL BE REPLACED BY THE CONTRACTOR IN A CONDITION AS GOOD AS PRE-EXISTING UNLESS INDICATED FOR REMOVAL.
5. THE CONTRACTOR SHALL NOTIFY SOUTH DAKOTA 811 AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
6. ALL CONSTRUCTION PERFORMED SHALL CONFORM WITH THE CURRENT STANDARDS AND SPECIFICATION OF DEUEL COUNTY. WHERE DISCREPANCIES EXIST BETWEEN THE PROJECT SPECIFICATIONS AND THE COUNTY SPECIFICATIONS OR STANDARD, THE CONTRACTOR SHALL ABIDE BY THE GREATER OR MORE RESTRICTIVE REQUIREMENTS.
7. ELECTRONIC FILES ARE AVAILABLE FOR CONSTRUCTION OPERATIONS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL DEVICES SUCH AS BARRICADES, WARNING SIGNS, DIRECTIONAL SIGNS, FLAGGERS, AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY. PLACEMENT OF THESE DEVICES SHALL BE APPROVED BY THE COUNTY/MUNICIPALITY AND CIVIL ENGINEER PRIOR TO PLACEMENT. TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
9. WETLAND INFORMATION HAS BEEN PROVIDED BY THE OWNER. ALL WETLAND DELINEATIONS AND PERMITTING SHALL BE THE RESPONSIBILITY OF OTHERS. THE OWNER AND CONTRACTOR SHALL VERIFY THAT ALL WETLAND PERMITS HAVE BEEN SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.
10. CULTURAL RESOURCE INFORMATION HAS NOT BEEN PROVIDED BY THE OWNER. THE CONTRACTOR SHALL BE FAMILIAR WITH THE INFORMATION/REPORT AND REVIEW ALL RECOMMENDATIONS.
11. AN ENVIRONMENTAL ASSESSMENT HAS NOT BEEN PROVIDED. THE CONTRACTOR SHALL BE FAMILIAR WITH THE INFORMATION/REPORT AND REVIEW ALL RECOMMENDATIONS.
12. WILDLIFE REPORT(S) HAVE NOT BEEN PROVIDED. THE CONTRACTOR SHALL BE FAMILIAR WITH THE INFORMATION/REPORT(S) AND REVIEW ALL RECOMMENDATIONS.

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DAVID
KELEHER
SOUTH DAKOTA
7/15/25

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South Deuel Wind Project
Deuel County, South Dakota

Construction Notes

ISSUED FOR CONSTRUCTION

DATE: 07/15/2025

SHEET: C703

REV: 0

EROSION AND SEDIMENT CONTROL CONSTRUCTION NOTES:

REFERENCE INFORMATION

1. CONSTRUCTION STORMWATER AUTHORITY HAVING JURISDICTION: SOUTH DAKOTA DEPARTMENT OF AGRICULTURE & NATURAL RESOURCES
2. CONSTRUCTION STORMWATER GENERAL PERMIT:
   - GENERAL PERMIT AUTHORIZING STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES UNDER THE SOUTH DAKOTA SURFACE WATER DISCHARGE SYSTEM (SDR100000)
   - https://danr.sd.gov/officeofwater/surfacewaterquality/stormwater/StormWaterConstruction.aspx
   - https://danr.sd.gov/officeofwater/surfacewaterquality/docs/DANR_ConstructionGeneralPermit2023.pdf
3. STATE-SPECIFIC BEST MANAGEMENT PRACTICE (BMP) MANUAL AND GUIDANCE:
   - https://dot.sd.gov/media/fd72b11d/Erosionsedicontrolconstman.pdf
   - https://dot.sd.gov/media/684e1776/ESControlSW.pdf
4. REFER TO STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED BY WESTWOOD FOR ADDITIONAL AND DETAILED INFORMATION.

PERMIT COVERAGE FOR CONSTRUCTION ACTIVITIES

1. CONSTRUCTION GENERAL STORMWATER PERMIT COVERAGE APPLIES TO ALL CONSTRUCTION ACTIVITIES FROM ANY PARTY/CRAFT/SUBCONTRACTOR.
2. CONTRACTOR IS RESPONSIBLE TO IMPLEMENT AND MAINTAIN BMPS AND CONDUCT REGULAR INSPECTIONS DURING ALL CONSTRUCTION WORK.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR/PRIMARY OPERATOR IS TO PROVIDE EROSION AND SEDIMENT CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES (BMPS) OUTLINED IN THESE PLANS AND BY THE SOUTH DAKOTA DEPARTMENT OF AGRICULTURE & NATURAL RESOURCES AND BEING IN CONFORMANCE WITH THE GENERAL PERMIT AUTHORIZING STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES UNDER THE SOUTH DAKOTA SURFACE WATER DISCHARGE SYSTEM (SDR100000).
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND PERMITEE TO MAINTAIN PERMIT COMPLIANCE.
3. SEE THE PROJECT SITE PLANS AND ASSOCIATED STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES AND RESTORATION INFORMATION. UNLESS OTHERWISE NOTED OR MODIFIED IN THE SWPPP/HEREIN, ALL SECTIONS OF THE GENERAL PERMIT SHALL APPLY.
4. THE CONTRACTOR/PRIMARY OPERATOR IS RESPONSIBLE FOR MAINTAINING THE SWPPP'S AVAILABILITY ONSITE AND AS REQUIRED.
5. QUALIFIED, TRAINED, AND KNOWLEDGEABLE PERSONNEL MUST BE PRESENT ON-SITE TO MANAGE THE IMPLEMENTATION OF BMPS, INSPECTIONS, AND COMPLIANCE.
6. ALL CONSTRUCTION CONTRACTORS AND SUBCONTRACTOR PERSONNEL ARE TO BE TRAINED IN THE IMPLEMENTATION AND USE OF THE REQUIRED BMPS AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE. TRAINING DOCUMENTATION SHALL BE MAINTAINED IN THE SWPPP.
7. THE PROJECT SITE IS TO BE MAINTAINED IN SUCH A CONDITION THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. NON-STORMWATER POLLUTANT DISCHARGES ARE PROHIBITED. PROHIBITED DISCHARGES INCLUDE, BUT ARE NOT LIMITED TO: WASTEWATER FROM WASHOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS, FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE, SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING AND MAINTENANCE, AND OTHER HAZARDOUS SUBSTANCES OR WASTES. DISPOSAL OF SUCH MATERIALS SHOULD OCCUR IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE PHYSICALLY SEPARATE FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
8. DISCHARGING CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING THAT HAS INFILTRATED INTO THE CONSTRUCTION SITE IS PROHIBITED.
9. DISCHARGING OF CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED.
10. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING IS TO BE CONTAINED ON-SITE AND NOT DISCHARGED TO RECEIVING WATERS OR LOCAL DRAINAGE SYSTEM.
11. APPROPRIATE BMPS FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES ARE TO BE IMPLEMENTED TO ELIMINATE OR REDUCE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR STORMWATER RUNOFF.
12. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS ARE TO BE COLLECTED AND PROPERLY DISPOSED OF IN TRASH OR RECYCLE BINS.
13. REFER TO SPILL PREVENTION, CONTROL, AND COUNTERMEASURE (SPCC) PLAN FOR SPILL CONTAINMENT AND CLEANUP REQUIREMENTS FOR CONTAMINATED SOILS DUE TO SPILLS.
14. ALL DRAINAGE SWALES, DITCHES, AND AREAS OF CONCENTRATED FLOW DISTURBED DURING CONSTRUCTION ARE TO BE REWORKED AND STABILIZED PRIOR TO NEXT PRECIPITATION EVENT OR WITHIN 24 HOURS, WHICHEVER IS SOONER, IN ACCORDANCE WITH THE SWPPP.
15. MAINTAIN EXISTING DRAINAGE WHEN PLACING STOCKPILES AND WINDROWS TO AVOID FLOODING WORK AREA AND ADJACENT FIELDS.
16. TOPSOIL SHALL BE STRIPPED, SEGREGATED, AND STOCKPILED SEPARATELY FROM SUBSOIL. DO NOT MIX TOPSOIL WITH SUBSOIL.

CONSTRUCTION PHASING/SEQUENCING

1. CONSTRUCTION PHASING AND BEST MANAGEMENT PRACTICES ARE TO BE IMPLEMENTED TO REDUCE SEDIMENT RUNOFF, AND PRESERVE NATURAL RESOURCES.
2. GENERAL SEQUENCING WITHIN EACH PHASE AND WORK AREA: INSTALL PERIMETER SEDIMENT CONTROLS (PSC), CLEAR AND GRUB, STRIP AND STOCKPILE TOPSOIL, MASS GRADING, RESPREAD TOPSOIL, SOIL STABILIZATION, TEMPORARY/PERMANENT EROSION AND SEDIMENT CONTROLS, BMP MAINTENANCE, FINAL STABILIZATION, AND REMOVE PSC. REFER TO THE SWPPP FOR ADDITIONAL INFORMATION.
3. THE CONSTRUCTION SITE IS TO BE MANAGED TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF EARTH DISTURBING ACTIVITIES AND PERSISTENT APPLICATIONS OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
4. AREAS THAT ARE CLEARED, GRADED, OR DISTURBED AT ANY GIVEN TIME SHALL BE LIMITED TO:
   - 4.1. ONLY THE PORTION OF THE SITE THAT IS NECESSARY FOR CONSTRUCTION
   - 4.2. ONLY AN AREA THAT CAN BE EFFECTIVELY CONTROLLED AND MAINTAINED BY THE AVAILABLE PERSONNEL AND MATERIAL.
5. IF POSSIBLE, EARTH DISTURBING ACTIVITIES SHOULD COINCIDE WITH THE DRY SEASON TO MINIMIZE EROSION AND SEDIMENT TRANSPORT.
6. IF THERE IS A CARRYOVER OF STOCKPILED MATERIAL FROM ONE PHASE/REGION TO THE NEXT, POSITION CARRYOVER MATERIAL IN A LOCATION EASILY ACCESSIBLE FOR THE PENDING PHASE THAT WILL NOT REQUIRE DISTURBANCE OF STABILIZED AREAS TO ACCESS THE STOCKPILE.

BMP PHASING/IMPLEMENTATION

1. EROSION AND SEDIMENT CONTROL BMPS, INCLUDING TEMPORARY AND PERMANENT STABILIZATION OF ALL DISTURBANCE, ARE TO BE IMPLEMENTED AS SPECIFIED IN THE SWPPP AND WITHIN THE APPLICABLE TIMEFRAMES.
2. ALL PERIMETER SEDIMENT CONTROLS ARE TO BE INSTALLED PRIOR TO ANY UP-GRADIENT EARTH DISTURBING ACTIVITIES.
3. ALL BMPS MUST BE INSPECTED, MAINTAINED, AND REPAIRED TO ENSURE CONTINUOUS FUNCTIONALITY.
4. PERSISTENT APPLICATIONS OF SOIL STABILIZATION TO BE APPLIED TO DISTURBED AREA THROUGHOUT CONSTRUCTION.
5. ALL PERIMETER SEDIMENT CONTROLS SHALL REMAIN IN-PLACE UNTIL UP-GRADIENT FINAL STABILIZATION IS COMPLETE.

INSPECTION SCHEDULE

ROUTINE SWPPP INSPECTIONS ARE TO BE CONDUCTED REGULARLY TO ENSURE COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS AND IDENTIFY ANY POTENTIAL ISSUES AT THE FOLLOWING INTERVALS:

1. ONCE EVERY 7 CALENDAR DAYS; OR
2. ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF PRECIPITATION THAT EXCEEDS 0.25 INCHES OR SNOWMELT THAT GENERATES RUNOFF.
3. ONCE PER MONTH FOR AREAS OF THE SITE THAT MEET FINAL STABILIZATION, OR RUNOFF IS UNLIKELY DUE TO FROZEN CONDITIONS.

STABILIZATION SCHEDULE

1. DEADLINE TO INITIATE STABILIZATION - YOU MUST BEGIN SOIL STABILIZATION MEASURES BY THE FOLLOWING WORKDAY WHENEVER EARTH-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE.
   - 1.1. EARTH-DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED WHEN YOU COMPLETE CLEARING, GRADING, AND EXCAVATION WITHIN ANY AREA OF YOUR SITE THAT WILL NOT INCLUDE PERMANENT STRUCTURES.
   - 1.2. EARTH-DISTURBING ACTIVITIES HAVE TEMPORARILY CEASED WHEN YOU CEASE CLEARING, GRADING, AND EXCAVATION WITHIN ANY AREA FOR A PERIOD OF AT LEAST 14 CALENDAR DAYS BUT WILL RESUME SUCH ACTIVITIES IN THE FUTURE.
2. DEADLINE TO COMPLETE TEMPORARY STABILIZATION - AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 CALENDAR DAYS AFTER INITIATING SOIL STABILIZATION MEASURES, YOU ARE REQUIRED TO HAVE COMPLETED:
   - 2.1. ALL ACTIVITIES NECESSARY TO INITIALLY SEED OR PLANT THE AREA TO BE STABILIZED FOR VEGETATIVE STABILIZATION PRACTICES.
   - 2.2. THE INSTALLATION OR APPLICATION OF ALL NON-VEGETATIVE MEASURES.
   - 2.3. AS SOON AS PRACTICABLE AFTER SEEDING OR PLANTING, SELECT, DESIGN, AND INSTALL NON-VEGETATIVE EROSION CONTROLS (E.G., MULCH OR ROLLED EROSION CONTROL PRODUCTS) TO PREVENT EROSION ON THE SEEDED OR PLANTED AREAS WHILE VEGETATION ESTABLISHES.
3. TEMPORARY AND PERMANENT SOIL STABILIZATION MEASURES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION PROCESSES UNTIL FINAL STABILIZATION HAS BEEN ACHIEVED AND NO FURTHER DISTURBANCE ACTIVITIES ARE PLANNED.

MAINTENANCE SCHEDULE

1. ALL EROSION AND SEDIMENT CONTROL MEASURES AND BMPS SHALL BE MAINTAINED IN GOOD AND EFFECTIVE OPERATING CONDITION, INCLUDING REMOVAL OF EXCESS SEDIMENT AND REPLACEMENT AS NECESSARY.
2. EROSION AND SEDIMENT CONTROLS THAT HAVE BEEN INTENTIONALLY DISABLED, RUN-OVER, REMOVED, OR OTHERWISE RENDERED INEFFECTIVE MUST BE REPLACED OR CORRECTED IMMEDIATELY UPON DISCOVERY.
3. MAINTENANCE MUST BE COMPLETED PRIOR TO THE NEXT ANTICIPATED RAINFALL EVENT.
4. MAINTENANCE MUST BE COMPLETED PER THE SCHEDULE SPECIFIED IN THE PROJECT SWPPP.

EROSION AND SEDIMENT CONTROL RECOMMENDED PRACTICES

1. CONTACT ENGINEER FOR ALTERNATIVE RECOMMENDATIONS OR ADDITIONAL DETAILS.
2. REFER TO SHEETS C700-C702FOR BMP DETAILS AND THE PROJECT SWPPP.
3. SELECT BMP LOCATIONS ARE SHOWN ON THE PLANS. FIELD ADJUSTMENTS, ALTERNATIVES, OR ADDITIONAL BMPS MAY BE IMPLEMENTED TO ALIGN WITH THE CONTRACTOR'S MEANS AND METHODS, FIELD CONDITIONS, INSPECTIONS, AND ACTIVE CONSTRUCTION ACTIVITIES. MULTIPLE APPLICATIONS MAY BE NECESSARY.
4. DUST CONTROL MEASURES ARE TO BE IMPLEMENTED TO MINIMIZE AIRBORNE DUST EMISSIONS AND PROTECT AIR QUALITY.
5. NATIVE/EXISTING VEGETATION AND BUFFERS ARE TO BE PRESERVED AND PROTECTED TO THE EXTENT POSSIBLE AND REVEGETATED AS REQUIRED.
6. PRESERVE 50' BUFFER FOR ALL WETLANDS, STREAMS, WATER BODIES, AND SENSITIVE AREAS. REDUNDANT SEDIMENT CONTROLS ARE REQUIRED WITHIN 50' BUFFER.
7. ALL SOIL STOCKPILES AND WINDROWS SHALL HAVE TEMPORARY EROSION CONTROL MEASURES APPLIED.
8. ALL DISTURBED AREAS DURING CONSTRUCTION ARE TO BE STABILIZED OR RE-STABILIZED FOLLOWING THE ACTIVITIES THAT CAUSED THE DISTURBANCE.

EROSION AND SEDIMENT CONTROL TYPE OR SITUATION	BEST MANAGEMENT PRACTICE (BMP)			DETAIL REFERENCE
SITE ENTRANCE / EXIT	VEHICLE TRACKOUT CONTROL			SW-40
CONSTRUCTION PERIMETER	REDUNDANT SEDIMENT CONTROLS WITHIN 50' OF SENSITIVE OR PROTECTED FEATURES			SW-91
	PERIMETER SEDIMENT CONTROLS (PSC)	SILT FENCE		SW-11 OR SW-12
		SEDIMENT CONTROL LOGS *SMALL DRAINAGE AREAS WITH SLOPES <3%*		SW-13
		TOPSOIL BERM		
		J-HOOKS *PSC UP/DOWN CONTOURS*		SW-18
		STRUCTURAL OVERFLOW / DRAINAGE OUTLETS *PSC LOW POINTS*		21 AND SW-22
DISTURBED SOIL AREAS (SOIL STABILIZATION)	SLOPES ≤ 6%	*STABILIZATION*	ANCHORED STRAW MULCH *WITH SEEDING*	SW-80
	SLOPES 6% ≤ 25%	*STABILIZATION*	ANCHORED STRAW MULCH *WITH SEEDING*	SW-80
WTG EXCAVATIONS	TOPSOIL BERM AND PERIMETER SEDIMENT CONTROL			SW-16
CONCRETE WASHOUT	CONCRETE WASHOUT AREA			SW-60

Attachment B

Westwood

Phone (214) 473-4640 2805 North Dallas Parkway, Suite 150
Toll Free (888) 937-5150 Plano, TX 75093
westwoodps.com

Westwood Professional Services, Inc.
South Dakota Firm Registration Number: C-1000

PROFESSIONAL ENGINEER
REG. NO.
17360
DAVID
KELEHER
SOUTH DAKOTA
7/15/25

PREPARED FOR:

Invenergy

One South Wacker Drive, Suite 1500
Chicago, IL 60606

REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
0	07/15/2025	ISSUED FOR PTC CONSTRUCTION	AF	SL	GN

South Deuel Wind Project

Deuel County, South Dakota

Erosion and Sediment Control Notes

ISSUED FOR CONSTRUCTION

DATE: 07/15/2025

SHEET: C704

REV: 0

Appendix F

Inspection and Maintenance Forms

Attachment B

Stormwater Construction Site Inspection Report

General Information

Project Name:	
Location:	
Date of Inspection:	Start/End Time:
Inspector's Name:	
Inspector's Title:	
Inspector's Contact Information:	
Describe present phase of construction:	
Type of Inspection: ☐ Regular ☐ Pre-storm event ☐ During storm event ☐ Post-storm event	

Weather Information

Has there been a storm event since the last inspection? ☐Yes ☐No
If yes, provide:
Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in):

Weather at time of this inspection?
☐ Clear ☐Cloudy ☐ Rain ☐ Sleet ☐ Fog ☐ Snowing ☐ High Winds
☐ Other: Temperature:

Have any discharges occurred since the last inspection? ☐Yes ☐No
If yes, describe:

Are there any discharges at the time of inspection? ☐Yes ☐No
If yes, describe:

Certification Statement

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Inspector *Printed Name and Title* *Date*

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1. All inactive slopes and disturbed areas have been stabilized.	☐Yes ☐No	☐Yes ☐No	
2. Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	☐Yes ☐No	☐Yes ☐No	
3. Are all sanitary waste recepticles placed in secondary containment and free of leaks?	☐Yes ☐No	☐Yes ☐No	
4. Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☐Yes ☐No	☐Yes ☐No	
5. Are discharge points and receiving waters free of any sediment deposits?	☐Yes ☐No	☐Yes ☐No	
6. Are storm drain inlets properly protected?	☐Yes ☐No	☐Yes ☐No	
7. Is the construction exit preventing sediment from being tracked into the street?	☐Yes ☐No	☐Yes ☐No	
8. Is trash/litter from work areas collected and placed in covered dumpsters?	☐Yes ☐No	☐Yes ☐No	
9. Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	☐Yes ☐No	☐Yes ☐No	
10. Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	☐Yes ☐No	☐Yes ☐No	
11. Are materials that are potential stormwater contaminants stored inside or under cover?	☐Yes ☐No	☐Yes ☐No	
12. Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	☐Yes ☐No	☐Yes ☐No	
13. (Other)	☐Yes ☐No	☐Yes ☐No	

Appendix G

Endangered Species, Wetlands, Cultural Resources (Information and Correspondence)

IPaC

Attachment B
U.S. Fish & Wildlife Service

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Deuel County, South Dakota

Local office

South Dakota Ecological Services Field Office

(605) 224-8693
(605) 224-1416

420 South Garfield Avenue, Suite 400

Pierre, SD 57501-5408

Attachment B

Attachment B

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Red Knot Calidris canutus rufa Wherever found There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/1864	Threatened

Fishes

NAME	STATUS
Topeka Shiner Notropis topeka (=tristis) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4122	Endangered

Insects

NAME	STATUS
Dakota Skipper Hesperia dacotae Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1028	Threatened
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Attachment B

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

Attachment B

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Baird's Sparrow Ammodramus bairdii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5113	Breeds May 20 to Aug 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Black Tern Chlidonias niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Franklin's Gull Leucophaeus pipixcan This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Henslow's Sparrow Ammodramus henslowii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10

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Ruddy Turnstone Arenaria interpres morinella — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

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Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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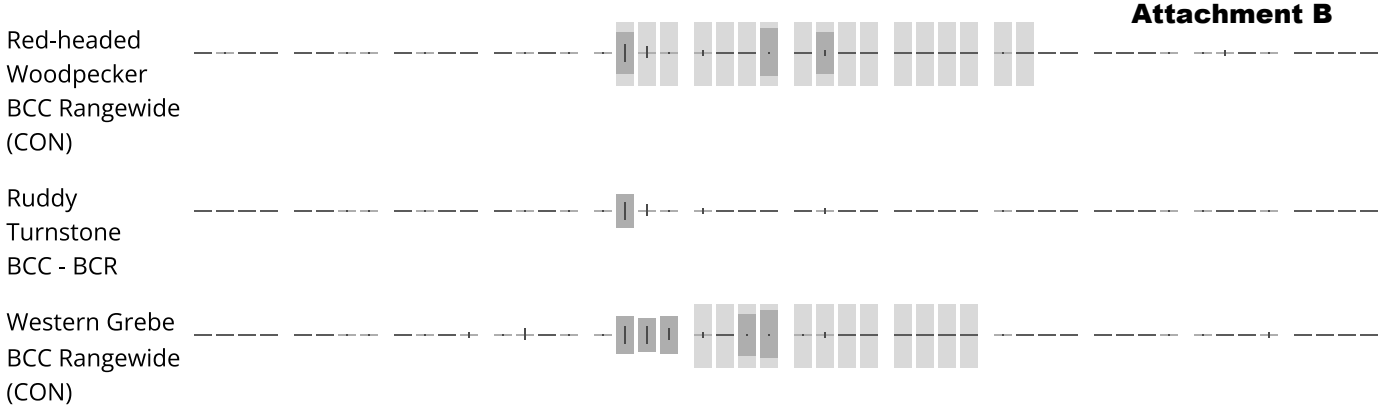

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

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How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

Attachment B

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuge lands:

LAND	ACRES
DEUEL COUNTY WATERFOWL PRODUCTION AREA	2,775.18 acres

Fish hatcheries

There are no fish hatcheries at this location.

Attachment B

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies.

Attachment B

Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.