

**UPPER NIOBRARA WHITE NATURAL RESOURCES DISTRICT**  
**EROSION AND SEDIMENT CONTROL PROGRAM**  
**RULES AND REGULATIONS**

**Proposed by the Board of Directors – November 2016**

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**UPPER NIOBRARA WHITE NATURAL RESOURCES DISTRICT  
RULES AND REGULATIONS FOR IMPLEMENTING  
EROSION AND SEDIMENT CONTROL ACT**

**1. AUTHORITY**

These rules and regulations are adopted pursuant to the authority granted in Section 2-4605, R.R.S. 1948, as amended.

**2. PURPOSE**

The purpose of these rules and regulations is to provide an orderly method for implementing the Erosion and Sediment Control Act, sections 2-4601 et. seq. R.R.S. 1943, as amended to provide for the conservation and preservation of the land, water and other resources of the District, and to thereby:

- (a) reduce damages caused from wind erosion,
- (b) reduce storm water runoff and the danger of flooding,
- (c) reduce sediment damage to lands within the District,
- (d) reduce non-point pollution from sedimentation and related pollutants
- (e) preserve the value of land and its productive capability for present and future generations, and
- (f) safeguard the health, safety and welfare of the District's citizens,

**3. APPLICABILITY**

These rules and regulations apply to all lands within the District except to those lands which lie within the respective jurisdiction of a county or municipality which has adopted and is implementing erosion and sediment control regulations in substantial conformance with the state erosion and sediment control program. Some non-agricultural land-disturbing activities are also excluded and are identified in Rule 4, Section (i), sub-sections (2), (3), (4) and (5).

**4. DEFINITIONS**

- (a) **Alleged violator** means the owner of record and the operator, if any, of land which is the subject of a complaint filed in accordance with Rule 8.
- (b) **Board** means the Board of Directors of the Upper Niobrara White Natural Resources District.
- (c) **Committee** means the Operations, Personnel and Policy Committee of the Upper Niobrara White Natural Resources District,
- (d) **Conservation agreement** means an agreement between the owner and operator, if any, of a farm unit and the District in which the owner and operator, if any, agrees to implement all or a portion of a farm unit conservation plan or erosion and sediment control plan. The agreement shall include a schedule for implementation and may be conditioned on the District or other public entity furnishing technical, planning or financial assistance in the establishment of the soil and water conservation or erosion and sediment control practices necessary to implement the plan or portion of the plan.

- (e) **District** means the Upper Niobrara White Natural Resources District.
- (f) **Excess erosion** means the occurrence of erosion in excess of the applicable soil-loss tolerance level which causes or contributes to an accumulation of sediment upon the lands of any other person to the detriment or damage of such other person.
- (g) **Farm unit conservation plan** means a plan jointly developed by the owner and, if appropriate, the operator of a farm unit and the District. Such plan shall be based on the determined conservation needs of the farm unit and identification of practices which may be expected to prevent soil loss by erosion to the applicable soil-loss tolerance level. The plan may also, if practicable, identify alternative practices by which such objective may be attained.
- (h) **Erosion and Sediment Control Plan** means a plan, developed for a parcel of land used for non-agricultural purposes, which identifies the permanent or temporary practices which may be expected to either prevent sediment from leaving that parcel or prevent soil loss / erosion from that parcel in excess of the applicable soil-loss tolerance level.
- (i) **Non-agricultural land-disturbing activity** means a land change including, but not limited to, tilling, clearing, grading, excavating, transporting, or filling land which may result in soil erosion from wind or water and the movement of sediment and sediment-related pollutants into the waters of the state or onto lands in the state, but shall not include:
  - (1) Activities related directly to the production of agricultural, horticultural or silvicultural crops, including, but not limited to, tilling, planting, or harvesting of such crops;
  - (2) Installation of aboveground public utility lines and connections, fence posts, sign posts, telephone poles, electric poles, and other kinds of posts or poles;
  - (3) Emergency work to protect life or property; and
  - (4) Activities related to the construction of housing, industrial, and commercial developments on sites under two acres in size; and
  - (5) Activities related to the operation, construction, or maintenance of industrial or commercial public power district or public power and irrigation district facilities or sites when such activity is conducted pursuant to state or federal law or is part of the operational plan for such facility or site.
- (j) **Sediment damage** means:
  - (1) the economic or physical damage to the land or other property of one person resulting from the deposition of sediment, by water or wind, or soil eroded from the lands of another person;
  - (2) the degradation of water quality and/or the reduced beneficial use of the water in the stream or lake involved resulting from soil sedimentation or the deposition of chemical laden sediments. For the purpose of this program, chemicals shall include, but is not limited to, any agricultural, municipal, or industrial chemicals or waste deposited on the soil. Physical effects to land or property which are relatively short term in nature and which cause no economic damage and no lasting physical damage shall not constitute sediment damage for the purpose of these rules and regulations.

**(k) Soil-loss tolerance level** means the maximum amount of soil loss due to erosion by wind or water, expressed in terms of tons per acre per year, which is determined to be acceptable in accordance with the Erosion and Sediment Control Act. Soil loss from water erosion may include:

- (1) sheet and rill erosion which includes relatively uniform soil loss across the entire field slope which may leave small channels located at regular intervals across the slope and
- (2) ephemeral gully erosion which occurs in well-defined depressions or natural drainageways where concentrated overland flow results in the convergence of rills forming deeper and wider channels.

**(l) T value** means the average annual tons per acre soil loss that a given soil may experience and still maintain its productivity over an extended period of time.

## **5. SOIL-LOSS TOLERANCE LEVEL**

USDA Soil Survey data provides values of soil loss tolerance (T) for various soil series across the District and are described as Soil-Loss Tolerance Levels in the NRCS TECHNICAL GUIDES. These soil-loss tolerance levels for the soils of the District have been adopted by the Board and are attached hereto as Appendix A. Each soil series listed may contain one or more soil mapping units-referred to in Rule 10. The permitted soil-loss tolerance levels for particular lands may not exceed the T value noted in Appendix A.

## **6. ADMINISTRATION**

**(a)** The Board delegates the responsibility for administering these rules and regulations to the District manager except to the extent Board action is specifically required by these rules and regulations or by law. The following duties shall be performed by or under the direction of the District manager.

(1) Keep an accurate record of all complaints received, investigations made, and other official actions.

(2) Investigate all complaints made in writing to the District office relating to the application of these rules and regulations and report in writing all alleged violations to the Board.

(3) Monitor compliance with all approved farm unit conservation plans, erosion and sediment control plans, and administrative orders issued by the Board.

**(b)** Except to the extent jurisdiction has been assumed by a municipality or county in accordance with section 2-4606, and after a written and signed complaint has been made, the District manager and such staff as he or she shall designate shall have the following powers and responsibilities:

(1) At any reasonable time, after notice to the owner and operator, if any, to enter upon any public or private lands within the area affected by these rules and regulations for the purpose of investigating complaints and to make inspections to determine compliance. The owner, operator, if any, and any other necessary technical personnel and representatives of the District may accompany the inspector.

(2) Upon reasonable cause, to report to the Board any violations of any administrative order issued by the Board pursuant to Section 2-4608, R.R.S. 1943, as amended, and these rules and regulations,

- (3) At the direction of the Board, and in accordance with Rule 13 (e) and 18, to commence any legal proceedings necessary to enforce these rules and regulations and any order issued pursuant to them.

## **7. VIOLATION**

A violation of these rules and regulations exists if:

- (a) sediment damage is occurring;
- (b) average annual soil losses on the land which is the source of that sediment are exceeding the soil-loss tolerance level adopted in rule 5;
- (c) the activity causing the soil loss is not an exempted non-agricultural land-disturbing activity (Rule 4(i) (2) to (5)); and
- (d) the land which is the source of the damage is not in strict compliance with a conservation agreement approved by the District,

## **8. COMPLAINT**

A complaint alleging that soil erosion is occurring in excess of the soil loss tolerance level or that sediment damage is occurring, may be filed in the District office by:

- (a) any owner or operator of land damaged by sediment,
- (b) any authorized representative of a state agency or political subdivision whose roads or other public facilities are being damaged by sediment,
- (c) any authorized representative of a state agency or political subdivision with responsibility for water quality maintenance if it is alleged that the soil erosion complained of is adversely affecting water quality, or
- (d) any District staff member, or other person authorized by the Board to file complaints.

Complaints shall be made in writing and signed on a form provided by the Director of Department of Natural Resources.

The flow chart for handling a complaint is found in Appendix C.

## **9. INVESTIGATION OF COMPLAINT**

Upon receipt of a properly filed complaint, a representative of the District shall notify the alleged violator within ten (10) days that a complaint has been filed and that an investigation will be initiated to determine whether a violation of these rules and regulations has occurred. The investigation shall take place as soon as possible after the complaint has been filed and notice given. The alleged violator shall be given an opportunity to accompany the person conducting the investigation.

If a farm unit conservation plan or erosion and sediment control plan previously approved by the District is being implemented and maintained in strict conformance with a conservation agreement including the land subject to the complaint, the complaint shall be dismissed. The alleged violator, complainant, and Board shall be notified.

Upon completion of the investigation, the investigator shall file a report of his or her findings with the Committee and shall provide copies to the alleged violator and the complainant. The report shall include:

- (a) the location and estimated acreage involved in the alleged violation;

- (b) the investigator's conclusions concerning the existence of any sediment damage and a description of the location and nature of any sediment damage identified; and
- (c) the location of land(s) which the investigator concludes are the source of the sediment, the nature of the land use on such lands, and the estimated average annual soil losses from such land(s).

The investigator may utilize the services of professional staff, consultants, or technicians of other state or federal agencies, if necessary.

#### **10. DETERMINATION OF SOIL LOSS**

Soil losses shall be determined by using the applicable portions of the then current version of the United States Department of Agriculture, Natural Resources Conservation Service Field Office Technical Guide to estimate the average annual sheet and rill erosion, ephemeral erosion or wind erosion.

The soil losses normally will be calculated on a soil survey mapping unit basis. If it is determined that soil loss in excess of the applicable soil loss tolerance level is occurring in the portion of one or more mapping units under the ownership and control of the alleged violator, they may not be averaged with other non-violating units for the purpose of determining overall soil loss. If it is determined that the sediment damage complained of is resulting from erosion from a land parcel smaller than the soil mapping unit, the soil loss equation in the Field Office Tech. Guide may be applied to such smaller portion only if such portion is two acres or greater.

The cover and crop management factor, "C", used in calculating erosion may incorporate a cropping history of up to five years. Crop rotation patterns longer than five years but not more than ten years may be used for the purpose of planning future compliance with soil loss tolerance levels but exceeding the limits may not be planned for more than two consecutive years. Soil losses from irrigation and gully erosion may also be determined by using acceptable scientific procedures and may, if deemed appropriate by the Board, be added to soil losses for sheet and rill, ephemeral and wind erosion. Soil losses from streambank erosion shall not be calculated and these rules and regulations are not applicable to this type of erosion. Application of the soil loss equation formulas will be made by someone whose qualifications to make such determinations can be supported in court.

#### **11. COMMITTEE AND BOARD ACTION ON COMPLAINT**

The committee shall assist the District staff in administering these rules and regulations and make determinations as to whether a probable violation of these rules and regulations has or has not occurred. Such determination shall be based upon the investigator's report completed pursuant to Rule 9 and an on-site inspection by the committee, if warranted. The committee may also request that both the alleged violator and the complainant appear before them to discuss the complaint. The committee shall report its findings to the Board, the alleged violator and the complainant with a recommendation of further action as follows:

- (a) If the staff and committee determine that no violation of these rules and regulations has occurred, it shall recommend and the Board may approve dismissal of the complaint. The complainant shall be given the opportunity to appear before the entire Board before the Board acts on the recommendation.

- (b) If the committee determines that a farm unit conservation plan previously approved by the District is being implemented and maintained in strict conformance with a conservation agreement including the land subject to the complaint, it shall recommend and the Board may approve dismissal of the complaint.
- (c) If the committee determines that the land which is identified in the complaint is being used for non-agricultural purposes, and is under an erosion and sediment control plan that has been approved by the District, is in conformance with any NPDES (National Pollution Discharge Elimination System) permit issued by the Nebraska Department of Environmental Quality (NDEQ), or any political subdivision of the state designated by NDEQ to issue such permits, it shall recommend and the Board may approve dismissal of the complaint.
- (d) If the committee determines that a probable violation of these rules and regulations has occurred, it shall proceed in accordance with Rule 12.

## **12. NOTICE OF VIOLATION**

If the committee determines that a probable violation of these rules and regulations has occurred, the alleged violator shall be informed of its findings by letter delivered in person or sent by registered or certified mail. The letter shall specify the options available to the alleged violator, including:

- (a) The alleged violator shall be given an opportunity to contact the District within ten days after receipt of notice concerning the development of a plan and schedule for eliminating excess erosion and sedimentation from the land that generated the complaint. If appropriate at this time, alternative practices for inclusion in a plan may be suggested. Information on cost-share programs and an indication of whether cost-share money is available may also be supplied.
- (b) The alleged violator shall be given an opportunity to contest the committee's findings at a regularly scheduled Board meeting or, if desired, a Board hearing to be held no sooner than fifteen days after receipt of notice. Notice of the date shall be given. The alleged violator may request a formal public hearing within ten (10) days of receipt of notice. The District's rules for formal adjudicatory hearings shall govern the conduct of all such hearings.
- (c) The alleged violator shall be further notified that if he or she does not respond to the notice and does not appear at the Board meeting for which notice was given, the Board shall proceed in accordance with Rule 15 in his or her absence to make a final determination on the complaint and issue an administrative order if the Board concludes that a violation has occurred.

## **13. DEVELOPMENT AND APPROVAL OF PLAN FOR COMPLIANCE**

- (a) If the alleged violator contacts the District pursuant to Rule 12 (a) and indicates a desire to jointly develop either a farm unit conservation plan or an erosion and sediment control plan for eliminating excess erosion on or sedimentation from the land that generated the complaint, Board action on the complaint shall be delayed until further action is taken by the committee pursuant to (b) or (d) of this Rule. The District manager and the alleged violator shall promptly secure the assistance of the Natural Resources Conservation Service (NRCS) or such other professional resource planners as are deemed necessary to



assist in preparation of such a plan and shall attempt to prepare a mutually acceptable plan in accordance with the NRCS Field Office Technical Guide. Any plan developed in accordance with this section shall identify, as applicable, the soil and water conservation practice(s) or erosion and sediment control practice(s) to be applied or utilized and shall be accompanied by a proposed conservation agreement setting forth a schedule for compliance.

- (b) Any plan developed by the alleged violator and the District manager shall be presented to the committee. If the committee agrees to the proposed plan and to the accompanying conservation agreement, the Board may thereafter approve such plan and agreement. The complainant shall be notified of such action and shall be provided copies of the approved plan and conservation agreement. In considering the schedule for compliance contained within the conservation agreement, the Board may approve a longer time for compliance than would be permissible if an order were issued pursuant to Rule 15, but shall not do so without consideration of the nature and extent of any additional sediment damages the complainant is likely to suffer until the plan has been fully implemented.
- (c) Strict conformance with a plan and agreement approved pursuant to this Rule shall be deemed compliance with these rules and regulations for the lands which are subject to the agreement.
- (d) If no mutually acceptable plan and conservation agreement have been prepared by the alleged violator and the District manager within an acceptable time period or if the committee concludes at any time that progress is not being made and is no longer likely on preparation of such a plan, the complaint shall be again referred to the Board and the alleged violator shall be so notified in person or by registered or certified mail and shall be given the information and option described in Rule 12(b). For purposes of this rule, acceptable time period shall mean (1) 90 days for alleged violations involving agricultural, horticultural, or silvicultural activities and (2) 15 days for alleged violations involving a non-agricultural land-disturbing activity.
- (e) Following refusal of a landowner to discontinuing an activity causing erosion which constitutes a violation in Rule 7, and to establish a plan and schedule for eliminating excess erosion pursuant to these rules, and if the immediate discontinuance of such activity is necessary to reduce or eliminate damage to neighboring property, the District may petition the District court for an order to the owner and, if appropriate, the operator, to immediately cease and desist such activity until excess erosion can be brought into conformance with the soil-loss tolerance level or sediment resulting from excess erosion is prevented from leaving the property.

#### **14. PRACTICES**

Practices designed to reduce or control soil erosion and/or sediment damage may be approved in developing a plan under Rule 13 and may be required by the District in an administrative order pursuant to Rule 15.

- (a) Soil and water conservation practices, applicable only to land used for agricultural, horticultural, or silvicultural purposes, may include:
  - (1) permanent practices, such as the planting of perennial grasses, legumes, shrubs, or trees, the establishment of grassed waterways, the construction of terraces, grade control structures, tile outlets, and other practices approved by the District.
  - (2) temporary soil and water conservation practices, such as the planting of annual or

biennial crops, use of strip-cropping, contour planting, conservation tillage or residue management system, and other cultural practices approved by the District.

The District shall maintain a complete list of approved permanent and temporary soil and water conservation practices as part of its local erosion and sediment control program. See Appendix B.

- (b) Erosion and sediment control practices, which are applicable to activities other than agricultural, horticultural, or silvicultural activities, may include:
- (1) the construction or installation and maintenance of permanent structures or devices necessary to carry to a suitable outlet away from any building site, any commercial or industrial development or any publicly or privately owned recreational or service facility not served by a central storm sewer system, any water which would otherwise cause erosion in excess of the applicable soil-loss tolerance level and which does not carry or constitute sewage or industrial or other waste to a suitable outlet away from any development or facility not served by a central storm sewer system;
  - (2) the use of temporary devices or structures, temporary seeding, mulching (including fiber mats, plastic, straw), diversions, silt fences, sediment traps or other measures adequate either to prevent erosion in excess of the applicable soil loss tolerable levels or to prevent excessive downstream sedimentation from land which is the site of or is directly affected by any non-agricultural land-disturbing activity; or
  - (3) the establishment and maintenance of vegetation upon the right-of-way of any completed portion of any public street, road, highway or the construction or installation thereon of permanent structures or devices or other measures adequate to prevent erosion on the right-of-way in excess of the applicable soil-loss tolerance level.

The District shall maintain a complete list of approved erosion and sediment control practices as part of its local erosion and sediment control program. See Appendix B.

## **15. ADMINISTRATIVE ORDER**

If, after Board consideration of the complaint at a meeting or hearing for which the alleged violator has been given notice in accordance with Rule 12, the Board finds that sediment damage has occurred, that average annual erosion on the land which is the source of the damage is occurring in excess of the applicable soil-loss tolerance level(s), and that a conservation plan or erosion and sediment control plan has not been developed nor is being implemented according to a conservation agreement, it shall issue an administrative order to the violator stating:

- a) the date of the order,
- b) the identity of the source of the violation and its location;
- c) the authority of the Board to issue such order;
- d) the specific findings, including (i) the estimated average annual soil loss and the extent to which erosion exceeds the applicable soil-loss tolerance level and, (ii) the nature of the sediment damage or water quality impairment resulting from such excessive erosion;
- e) if desired by the Board, the alternative soil and water conservation practices or erosion and sediment control practices required to bring the land into conformance with these rules and regulations. When the erosion is the result of agricultural, horticultural, or silvicultural activities, the soil and water conservation practices required shall be those

necessary to bring the land into conformance with the applicable soil-loss tolerance level. Where the erosion complained of is the result of a non-agricultural land-disturbing activity, the Board may authorize the violator to either bring the land into conformance with applicable soil loss tolerance level or to prevent sediment resulting from excessive erosion from leaving the land;

- f) any requirements concerning the operation, utilization, or maintenance of the alternative practices identified;
- g) the deadlines for commencing and completing work necessary to comply with this order.
  - a. The time for initiating work needed to establish the necessary soil and water conservation practices shall not exceed six months after service or mailing of the order to the violator and shall be completed no later than one year after service or mailing of the order to the violator unless an extension has been granted upon a showing of good cause
  - b. A reasonable time for initiating work needed to establish erosion and sediment control practices for nonagricultural land-distributing activities shall not exceed five days after service or mailing of the order. Temporary practices shall be completed not longer than fifteen days after service or mailing of the order and permanent practices shall be completed no longer than forty-five (45) days after service or mailing of the order unless an extension has been granted upon a showing of good cause. An extension shall only be granted after review and affirmative action of the Board.
- (h) the action to be taken by the Board if the violator does not comply.

A copy of the dismissal or administrative order shall be delivered to the owner and to the operator, if any, of the land in question by personal service or certified or registered mail.

## **16. COST-SHARE ASSISTANCE**

To prevent excess erosion and sediment from leaving the land due to any agricultural or nonagricultural land-disturbing activity, cost-share assistance may be available from the District. Such assistance, if available, may be used for any erosion or sediment control practice. The lack of available cost-sharing assistance does not offset the requirement that the owner and, if appropriate, the operator of such land comply with the terms of an approved plan of compliance or an administrative order.

## **17. SUPPLEMENTAL ORDERS**

The Board may issue supplemental orders, as necessary, to extend the time of compliance with an administrative order if, in its judgment, the failure to commence or complete work as required by the administrative order is due to factors beyond the control of the person to whom the order is directed and the person can be relied upon to commence and complete the necessary work at the earliest possible time.

## **18. NON-COMPLIANCE**

Subject to any limitations imposed by the Board, the District manager may cause the District to commence legal proceedings by filing a petition in the name of the District in the District court in which a majority of the land is located requesting a court order requiring immediate compliance with the administrative order or any supplemental order issued previously, if he or she has reasonable cause to believe after inspection that an administrative order issued previously by the Board is not being complied with because:

- (1)** the work necessary to comply with the order is not commenced on or before the date specified in the order or in any supplemental orders;
- (2)** the work is not being performed with due diligence, is not satisfactorily completed by the date specified in the order, or is not being operated, utilized, or maintained in accordance with requirements set forth in the order;
- (3)** the work is not of a type or quantity specified by the District, and when completed, it will not or does not reduce soil loss to within the applicable soil-loss tolerance level for the identified land or, in the case of non-agricultural land-disturbing activity, will not or does not prevent sediment resulting from excessive erosion from leaving the land involved, or
- (4)** the person to whom the order is directed informs the District that he or she does not intend to comply.

## **APPENDIX A**

### **Soil-Loss Tolerance Levels & Erosion Factors**

**The following pages summarize the various soil types, soil-loss limits and erosion factors of soils by county, for each of the counties which make up the Upper Niobrara White Natural Resources District. Each soil is listed by its old Soil Survey abbreviation symbol and the new NRCS assigned numerical symbol for that soil type. Note that some newer soils identified do not have an older abbreviation symbol.**

**Soil erosion factors are listed as follows:**

**T – Soil-loss tolerance levels**

**I – Wind erodibility index**

**K – Soil erodibility measured under a standard condition**

**The Frozen Factors listed remain the same for all soils listed.**

**C – Cover management number**

**R – Climatic erosivity**

**See Soils Tables on accompanying pages.**

**Box Butte County, Nebraska**

1990 Frozen Factors

C Factor = 0.5

R Factor = 50

<b>Old Symbol</b>	<b>New Symbol</b>	<b>Soil Map Unit Name</b>	<b>T</b>	<b>I</b>	<b>K</b>
Ba	1001	Bankard fine sand, channeled, frequently flooded	5	220	0.15
	1006	Bankard loamy fine sand, channeled, frequently flooded			
BbB	1012	Bankard very fine sandy loam, 0 to 3 percent slopes	5	86	0.24
	1013	Bankard loamy coarse sand, frequently flooded			
	1188	Las Animas-Lisco complex, occasionally flooded			
		Las Animas-Lisco very fine sandy loams, occasionally flooded	5	86	0.32
Ln	1189	flooded			
	1320	Beckton silt loam, 0 to 2 percent slopes			
Br	1361	Bridget very fine sandy loam, 0 to 1 percent slopes	5	86	0.32
BrB	1362	Bridget very fine sandy loam, 1 to 3 percent slopes	5	86	0.32
BrC	1363	Bridget very fine sandy loam, 3 to 6 percent slopes	5	86	0.32
	1545	Dailey loamy fine sand, 0 to 3 percent slopes			
	1546	Dailey loamy fine sand, 3 to 9 percent slopes			
DaB	1547	Dailey loamy sand, 0 to 3 percent slopes	5	134	0.17
DaD	1548	Dailey loamy sand, 3 to 9 percent slopes	5	134	0.17
Go	1585	Goshen loam, 0 to 1 percent slopes	5	56	0.28
Ke	1617	Keith loam, 0 to 1 percent slopes	5	48	0.32
KeB	1618	Keith loam, 1 to 3 percent slopes	5	48	0.32
KeC	1621	Keith loam, 3 to 6 percent slopes	5	48	0.32
Su	1659	Lodgepole loam, frequently ponded	3	56	0.37
MaB	1683	Manter-Satanta fine sandy loams, 0 to 3 percent slopes	5	86	0.2
MaC	1684	Manter-Satanta fine sandy loams, 3 to 6 percent slopes	5	86	0.2
	1704	Otero loamy very fine sand, 0 to 3 percent slopes			
Ro	1725	Rosebud loam, 0 to 1 percent slopes	4	48	0.28
RoB	1726	Rosebud loam, 1 to 3 percent slopes	4	48	0.28
RsD	1736	Rosebud-Canyon complex, 3 to 9 percent slopes	4	48	0.28
RsF	1737	Rosebud-Canyon complex, 9 to 30 percent slopes	4	48	0.28
Rh	1760	Richfield loam, 0 to 1 percent slopes	5	48	0.32

StB	1809	Satanta fine sandy loam, 1 to 3 percent slopes	5	86	0.2
StC	1812	Satanta fine sandy loam, 3 to 6 percent slopes	5	86	0.2
StD	1813	Satanta fine sandy loam, 6 to 9 percent slopes	5	86	0.2
VaD	1886	Valent fine sand, 3 to 9 percent slopes	5	250	0.15
VaE	1887	Valent fine sand, 9 to 20 percent slopes	5	250	0.15
	1889	Valent fine sand, rolling			
VdB	1891	Valent loamy fine sand, 0 to 3 percent slopes	5	134	0.17
VdD	1892	Valent loamy fine sand, 3 to 9 percent slopes	5	134	0.17
VdE	1894	Valent loamy fine sand, 9 to 20 percent slopes	5	134	0.17
Md	2176	McCook loam, occasionally flooded	5	86	0.32
	3228	Lute loam, 0 to 2 percent slopes			
Lc	3522	Lamo variant loam, 0 to 1 percent slopes	5	86	0.32
	4264	Hoffland fine sandy loam, occasionally flooded			
	4456	Crowther loam, frequently ponded			
	4521	Els fine sand, 0 to 3 percent slopes			
Ho	4636	Hoffland fine sandy loam, frequently ponded	5	0	0.2
		Ipaga loamy fine sand, alkali substratum, 0 to 3 percent slopes	2	134	0.17
IpB	4649				
	4683	Marlake fine sandy loam, frequently ponded			
Mc	4693	Marlake very fine sandy loam, frequently ponded	2	0	0.2
VnD	4791	Valentine fine sand, 3 to 9 percent slopes	5	250	0.15
VnE	4794	Valentine fine sand, 9 to 17 percent slopes	5	250	0.15
VnF	4800	Valentine fine sand, hilly	5	250	0.15
	4807	Valentine fine sand, rolling			
	4810	Valentine fine sand, rolling and hilly			
	4814	Valentine loamy fine sand, 0 to 3 percent slopes			
	4818	Valentine loamy fine sand, 3 to 9 percent slopes			
	4895	Wildhorse loamy fine sand, 0 to 3 percent slopes			
	4897	Wildhorse-Hoffland complex, 0 to 3 percent slopes			
		Wildhorse-Ipaga, calcareous complex, 0 to 3 percent slopes			
	4898				
Ac	5100	Alliance loam, 0 to 1 percent slopes	5	48	0.32
AcB	5101	Alliance loam, 1 to 3 percent slopes	5	48	0.32
AcC	5102	Alliance loam, 3 to 6 percent slopes	5	48	0.32

ArB	5108	Alliance-Rosebud loams, 1 to 3 percent slopes	5	48	0.32
ArC	5109	Alliance-Rosebud loams, 3 to 6 percent slopes	5	48	0.32
ArD	5110	Alliance-Rosebud loams, 6 to 11 percent slopes	5	48	0.32
	5119	Busher fine sandy loam, 0 to 3 percent slopes			
	5120	Busher fine sandy loam, 3 to 6 percent slopes			
	5121	Busher fine sandy loam, 6 to 9 percent slopes			
	5123	Busher loamy very fine sand, 1 to 6 percent slopes			
BuB	5133	Busher-Jayem loamy very fine sands, 0 to 3 percent slopes	5	86	0.2
BuC	5134	Busher-Jayem loamy very fine sands, 3 to 6 percent slopes	5	86	0.2
BuD	5135	Busher-Jayem loamy very fine sands, 6 to 9 percent slopes	5	86	0.2
	5137	Busher-Tassel complex, 0 to 6 percent slopes			
	5139	Busher-Tassel complex, 6 to 30 percent slopes			
BvC	5142	Busher-Tassel loamy very fine sands, 0 to 6 percent slopes	5	86	0.2
		Busher-Tassel loamy very fine sands, 6 to 30 percent slopes	5	86	0.2
BvF	5143				
	5145	Busher-Tassel loamy very fine sand, 3 to 9 percent slopes			
CaF	5154	Canyon very fine sandy loam, 3 to 30 percent slopes	2	86	0.32
Hm	5179	Hemingford loam, 0 to 1 percent slopes	5	56	0.28
HmB	5180	Hemingford loam, 1 to 3 percent slopes	5	56	0.28
HmC	5181	Hemingford loam, 3 to 6 percent slopes	5	56	0.28
ImG	5187	Imlay-Rock outcrop complex, 9 to 60 percent slopes	2	48	0.32
NoF	5193	Norrest loam, 9 to 30 percent slopes	4	86	0.37
NoD	5194	Norrest loam, 6 to 11 percent slopes	4	86	0.37
NpF	5198	Norrest-Canyon complex, 9 to 30 percent slopes	4	86	0.37
	5206	Oglala-Canyon complex, 3 to 9 percent slopes			
	5210	Oglala-Canyon complex, 9 to 30 percent slopes			
		Oglala-Canyon very fine sandy loams, 3 to 9 percent slopes	5	86	0.32
OtD	5212				
		Oglala-Canyon very fine sandy loams, 9 to 30 percent slopes	5	86	0.32
OtF	5215				
VtB	5281	Vetal fine sandy loam, 0 to 3 percent slopes	5	86	0.2
VtC	5282	Vetal fine sandy loam, 3 to 6 percent slopes	5	86	0.2
	5600	Bigwinder fine sandy loam, frequently flooded			
CbB	5616	Craft very fine sandy loam, occasionally flooded	5	86	0.37



Du	5625	Duroc loam, occasionally flooded	5	56	0.32
Jn	5643	Janise loam, occasionally flooded	5	86	0.43
Jo	5644	Janise loam, drained, 0 to 3 percent slopes	5	86	0.37
JcB	5645	Janise loamy fine sand, drained, overblown, 0 to 3 percent slopes	5	134	0.17
JaB	5646	Janise loamy fine sand, overblown, 0 to 3 percent slopes	5	134	0.17
Lo	5656	Lisco very fine sandy loam, occasionally flooded	5	56	0.37
Lp	5657	Lisco very fine sandy loam, wet, occasionally flooded	5	56	0.37
Ce	5815	Creighton very fine sandy loam, 0 to 1 percent slopes	5	86	0.32
CeB	5934	Creighton very fine sandy loam, 1 to 3 percent slopes	5	86	0.32
CeC	5935	Creighton very fine sandy loam, 3 to 6 percent slopes	5	86	0.32
CeD	5936	Creighton very fine sandy loam, 6 to 11 percent slopes	5	86	0.32
CnF	5937	Creighton-Norrest complex, 11 to 30 percent slopes	5	86	0.32
CnD	5938	Creighton-Norrest complex, 6 to 11 percent slopes	5	86	0.32
DrB	5943	Duroc loam, 1 to 3 percent slopes	5	48	0.32
JyB	5965	Jayem fine sandy loam, 0 to 3 percent slopes	5	86	0.2
JyC	5966	Jayem fine sandy loam, 3 to 6 percent slopes	5	86	0.2
JxB	5970	Jayem loamy fine sand, 0 to 3 percent slopes	5	134	0.17
JsB	5974	Jayem loamy sand, overblown, 0 to 3 percent slopes	5	134	0.15
	5976	Jayem loamy very fine sand, 0 to 3 percent slopes			
	5983	Rock outcrop-Tassel complex, 9 to 70 percent slopes			
	6012	Sarben-Busher complex, 0 to 3 percent slopes			
	6013	Sarben-Busher complex, 3 to 9 percent slopes			
SbB	6014	Sarben-Busher loamy very fine sands, 0 to 3 percent slopes	5	134	0.24
SbD	6015	Sarben-Busher loamy very fine sands, 3 to 9 percent slopes	5	134	0.24
TaF	6026	Tassel loamy very fine sand, 3 to 30 percent slopes	2	134	0.24
	6031	Tassel-Ashollow-Rock outcrop complex, 9 to 60 percent slopes			
	6033	Tassel-Busher loamy very fine sands, 3 to 30 percent slopes			
	6036	Tassel-Busher-Rock outcrop complex, 6 to 30 percent slopes			
RkG	6052	Rock outcrop-Tassel complex, 11 to 60 percent slopes	0	0	0
LD	9967	Sanitary landfill			

INT	9970	Aquolls			
AED	9971	Arents, earthen dam			
BP	9976	Borrow pit			
M-W	9986	Miscellaneous water, sewage lagoon			
W	9999	Water	0	0	0
zw	9999	Water	0	0	0

## Dawes County, Nebraska

1990 Frozen Factors

C Factor = 0.5

R Factor = 50

Old Symbol	New Symbol	Soil Map Unit Name	T	I	K
	1001	Bankard fine sand, channeled, frequently flooded			
Bc	1004	Bankard loamy fine sand, 0 to 2 percent slopes	5	134	0.17
	1006	Bankard loamy fine sand, channeled, frequently flooded			
Bd	1008	Bankard loamy fine sand, wet variant	5	134	0.17
	1012	Bankard very fine sandy loam, 0 to 3 percent slopes			
Gr	1013	Bankard loamy coarse sand, frequently flooded	2	134	0.1
Sn	1014	Bankard loamy fine sand, frequently flooded	5	134	0.17
	1030	Glenberg fine sandy loam, 0 to 2 percent slopes			
	1031	Glenberg fine sandy loam, channeled, frequently flooded			
GbB	1036	Glenberg loamy very fine sand, 0 to 3 percent slopes	5	134	0.17
GoB	1037	Glenberg loamy very fine sand, occasionally flooded, 0 to 3 percent slopes	5	134	0.17
	1114	Bankard loamy fine sand, occasionally flooded			
La	1187	Las Animas soils, 0 to 2 percent slopes	5	86	0.24
	1350	Bridget loam, 0 to 1 percent slopes			
Bg	1355	Bridget silt loam, 0 to 1 percent slopes	5	56	0.32
BgB	1356	Bridget silt loam, 1 to 3 percent slopes	5	56	0.32

BgD	1357	Bridget silt loam, 3 to 6 percent slopes	5	56	0.32
BgF	1358	Bridget silt loam, 9 to 20 percent slopes	5	56	0.32
	1361	Bridget very fine sandy loam, 0 to 1 percent slopes			
	1362	Bridget very fine sandy loam, 1 to 3 percent slopes			
	1363	Bridget very fine sandy loam, 3 to 6 percent slopes			
	1364	Bridget very fine sandy loam, 6 to 9 percent slopes			
Bf	1535	Sulco-Haverson loams, 0 to 50 percent slopes	5	86	0.43
KfD	1616	Keith and Ulysses silt loams, 3 to 9 percent slopes	5	48	0.32
	1618	Keith loam, 1 to 3 percent slopes			
KeB	1620	Keith silt loam, 1 to 3 percent slopes	5	48	0.32
	1621	Keith loam, 3 to 6 percent slopes			
KeD	1631	Keith silt loam, 3 to 9 percent slopes	5	48	0.32
	1690	Manvel silty clay loam, 3 to 6 percent slopes			
MnC	1697	Minnequa silty clay loam, 1 to 6 percent slopes	2	86	0.37
MnD	1698	Minnequa silty clay loam, 6 to 12 percent slopes	2	86	0.37
	1726	Rosebud loam, 1 to 3 percent slopes			
RsB	1730	Rosebud silt loam, 1 to 3 percent slopes	4	48	0.32
	1736	Rosebud-Canyon complex, 3 to 9 percent slopes			
RxD	1742	Rosebud-Canyon loams, 3 to 9 percent slopes	4	48	0.28
RhB	1762	Richfield silt loam, 1 to 3 percent slopes	5	48	0.32
	1812	Satanta fine sandy loam, 3 to 6 percent slopes			
	1813	Satanta fine sandy loam, 6 to 9 percent slopes			
	1822	Satanta-Canyon complex, 12 to 20 percent slopes			
	1823	Satanta-Canyon complex, 6 to 12 percent slopes			
UsF	1862	Ulysses silt loam, 9 to 20 percent slopes	5	48	0.32
VaB	1881	Valent and Dwyer loamy fine sands, 0 to 3 percent slopes	5	134	0.17
VaF	1882	Valent and Dwyer loamy fine sands, 3 to 20 percent slopes	5	134	0.17
	1884	Valent complex, rolling and hilly			
	1885	Valent fine sand, 0 to 3 percent slopes			
	1886	Valent fine sand, 3 to 9 percent slopes			
	1891	Valent loamy fine sand, 0 to 3 percent slopes			
	1892	Valent loamy fine sand, 3 to 9 percent slopes			

	1894	Valent loamy fine sand, 9 to 20 percent slopes			
	2360	Munjor fine sandy loam, rarely flooded			
	2361	Munjor fine sandy loam, channeled, frequently flooded			
	4223	Bolent loamy fine sand, occasionally flooded			
	4524	Els fine sand, calcareous, 0 to 3 percent slopes			
	4636	Hoffland fine sandy loam, frequently ponded			
	4649	Ipage loamy fine sand, alkali substratum, 0 to 3 percent slopes			
	4713	Orpha loamy fine sand, 3 to 9 percent slopes			
	4716	Orpha-Niobrara complex, 9 to 30 percent slopes			
Cf	5003	Lohmiller silty clay loam, frequently flooded	5	86	0.28
	5056	Buften clay loam, 1 to 3 percent slopes			
Bn	5058	Buften silty clay loam, 0 to 1 percent slopes	5	86	0.37
BnB	5060	Buften silty clay loam, 1 to 3 percent slopes	5	86	0.37
BoD	5061	Buften-Hisle complex, 0 to 9 percent slopes	5	86	0.37
VeC	5070	Vetal and Bayard soils, 1 to 6 percent slopes	5	86	0.2
	5101	Alliance loam, 1 to 3 percent slopes			
	5102	Alliance loam, 3 to 6 percent slopes			
AcB	5105	Alliance silt loam, 1 to 3 percent slopes	5	48	0.32
AcD	5106	Alliance silt loam, 3 to 9 percent slopes	5	48	0.32
AcD2	5107	Alliance silt loam, 3 to 9 percent slopes, eroded	5	48	0.32
	5112	Buften clay loam, 3 to 9 percent slopes			
BnD	5114	Buften silty clay loam, 3 to 9 percent slopes	5	86	0.37
BnF	5115	Buften silty clay loam, 9 to 20 percent slopes	5	86	0.37
BxF	5118	Busher and tassel loamy very fine sands, 6 to 20 percent slopes	5	134	0.2
BxF1	5118	Busher and tassel loamy very fine sands, 6 to 20 percent slopes			
BuC	5123	Busher loamy very fine sand, 1 to 6 percent slopes	5	134	0.2
BuC2	5124	Busher loamy very fine sand, 1 to 6 percent slopes, eroded	5	134	0.2
	5125	Busher loamy very fine sand, 3 to 6 percent slopes			
BuD	5126	Busher loamy very fine sand, 6 to 9 percent slopes	5	134	0.2
BuD2	5128	Busher loamy very fine sand, 6 to 9 percent slopes, eroded	5	134	0.2
BuF	5129	Busher loamy very fine sand, 9 to 20 percent slopes	5	134	0.2

	5133	Busher-Jayem loamy very fine sands, 0 to 3 percent slopes			
	5134	Busher-Jayem loamy very fine sands, 3 to 6 percent slopes			
	5135	Busher-Jayem loamy very fine sands, 6 to 9 percent slopes			
	5139	Busher-Tassel complex, 6 to 30 percent slopes			
	5143	Busher-Tassel loamy very fine sands, 6 to 30 percent slopes			
CcF	5152	Canyon soils, 3 to 30 percent slopes	2	86	0.32
CcG	5153	Canyon soils, 30 to 50 percent slopes	2	86	0.32
RoG	5162	Rock outcrop-Canyon complex, 30 to 60 percent slopes	0	0	0
KpD	5184	Keota-Epping silt loams, 3 to 9 percent slopes	4	86	0.37
	5188	Keya loam, 0 to 2 percent slopes			
	5191	Norrest clay loam, 1 to 3 percent slopes			
	5192	Norrest clay loam, 3 to 9 percent slopes			
NrB	5195	Norrest silty clay loam, 1 to 3 percent slopes	4	86	0.37
NrD	5196	Norrest silty clay loam, 3 to 9 percent slopes	4	86	0.37
NrF	5197	Norrest silty clay loam, 9 to 20 percent slopes	4	86	0.37
OgF	5200	Oglala loam, 9 to 30 percent slopes	5	56	0.28
	5206	Oglala-Canyon complex, 3 to 9 percent slopes			
	5207	Oglala-Canyon complex, 6 to 9 percent slopes			
	5210	Oglala-Canyon complex, 9 to 30 percent slopes			
OhF	5211	Oglala-Canyon loams, 9 to 20 percent slopes	5	56	0.28
	5215	Oglala-Canyon very fine sandy loams, 9 to 30 percent slopes			
PrC	5225	Pierre clay, 1 to 6 percent slopes	4	86	0.37
PrF	5226	Pierre clay, 6 to 20 percent slopes	4	86	0.37
Psd	5227	Pierre-Slickspots complex, 3 to 9 percent slopes	4	86	0.37
	5230	Ponderosa loamy very fine sand, 6 to 9 percent slopes			
	5231	Ponderosa loamy very fine sand, 9 to 20 percent slopes			
	5234	Ponderosa-Tassel-Vetal complex, 6 to 30 percent slopes			
SbF	5240	Samsil silty clay, 3 to 30 percent slopes	2	86	0.37
SbF1	5240	Samsil silty clay, 3 to 30 percent slopes			
	5241	Samsil-Pierre complex, 3 to 30 percent slopes			
ShG	5243	Samsil-Shale outcrop complex, 9 to 50 percent slopes	2	86	0.37

SyF	5254	Schamber soils, 3 to 30 percent slopes	2	86	0.17
Sa	5255	Skilak silty clay loam, 0 to 5 percent slopes	5	86	0.32
KaB	5257	Thirtynine silt loam, 0 to 2 percent slopes	5	48	0.32
KaB1	5257	Thirtynine silt loam, 0 to 2 percent slopes			
KaD	5258	Thirtynine silt loam, 2 to 11 percent slopes	5	48	0.32
KaD1	5258	Thirtynine silt loam, 2 to 11 percent slopes			
KaD2	5259	Thirtynine silt loam, 2 to 11 percent slopes, eroded	5	48	0.32
KaD21	5259	Thirtynine silt loam, 2 to 11 percent slopes, eroded			
	5260	Thirtynine loam, 1 to 3 percent slopes			
	5261	Thirtynine loam, 3 to 6 percent slopes			
	5262	Thirtynine loam, 6 to 9 percent slopes			
	5281	Vetal fine sandy loam, 0 to 3 percent slopes			
	5282	Vetal fine sandy loam, 3 to 6 percent slopes			
	5288	Vetal loamy fine sand, 0 to 3 percent slopes			
	5291	Vetal very fine sandy loam, 1 to 3 percent slopes			
	5292	Vetal very fine sandy loam, 3 to 6 percent slopes			
PmF	5350	Enning and Minnequa silty clay loams, 6 to 20 percent slopes	2	86	0.32
	5351	Enning-Minnequa complex, 6 to 20 percent slopes			
	5352	Enning-Rock outcrop complex, 11 to 40 percent slopes			
PeG	5353	Enning-Shale outcrop complex, 11 to 50 percent slopes	2	86	0.32
	5355	Hisle-Slickspots complex, 0 to 6 percent slopes			
Ky	5358	Kyle silty clay, 0 to 1 percent slopes	5	86	0.37
KyC	5359	Kyle silty clay, 1 to 6 percent slopes	5	86	0.37
Kz	5360	Kyle-Hisle complex, 0 to 2 percent slopes	5	86	0.37
Wx	5600	Bigwinder fine sandy loam, frequently flooded	5	134	0.17
	5612	Craft loam, channeled, frequently flooded			
HaB	5637	Haverson silt loam, 0 to 3 percent slopes	5	86	0.32
HbB	5638	Haverson silt loam, occasionally flooded	5	86	0.32
HcB	5639	Haverson silty clay loam, occasionally flooded	5	86	0.32
Lo	5640	Haverson loam, frequently flooded	5	86	0.28
	5657	Lisco very fine sandy loam, wet, occasionally flooded			

Bh	5810	Buffington silty clay, 0 to 1 percent slopes	5	86	0.32
Mt	5834	Mitchell silt loam, 0 to 1 percent slopes	5	86	0.43
MtC	5836	Mitchell silt loam, 1 to 6 percent slopes	5	86	0.43
MtD	5838	Mitchell silt loam, 6 to 9 percent slopes	5	86	0.43
MtF	5839	Mitchell silt loam, 9 to 20 percent slopes	5	86	0.43
MxF	5849	Mitchell-Epping complex, 9 to 30 percent slopes	5	86	0.43
Tr	5870	Tripp silt loam, 0 to 1 percent slopes	5	56	0.32
TrB	5871	Tripp silt loam, 1 to 3 percent slopes	5	56	0.32
Ts	5872	Tripp silt loam, saline-alkali, 0 to 2 percent slopes	5	56	0.32
	5943	Duroc loam, 1 to 3 percent slopes			
DuB	5947	Duroc very fine sandy loam, 1 to 3 percent slopes	5	86	0.32
JvD	5964	Jayem and Vetal loamy very fine sands, 6 to 9 percent slopes	5	134	0.17
	5965	Jayem fine sandy loam, 0 to 3 percent slopes			
	5966	Jayem fine sandy loam, 3 to 6 percent slopes			
JmC	5978	Jayem loamy very fine sand, 1 to 6 percent slopes	5	134	0.17
	5979	Jayem loamy very fine sand, 3 to 6 percent slopes			
JmD	5980	Jayem loamy very fine sand, 6 to 9 percent slopes	5	134	0.17
	5983	Rock outcrop-Tassel complex, 9 to 70 percent slopes			
	5987	Orella clay, 1 to 30 percent slopes			
OrF	5988	Orella silty clay loam, 3 to 30 percent slopes	2	86	0.32
	6026	Tassel loamy very fine sand, 3 to 30 percent slopes			
TaF	6028	Tassel soils, 3 to 30 percent slopes	2	134	0.24
	6031	Tassel-Ashollow-Rock outcrop complex, 9 to 60 percent slopes			
	6036	Tassel-Busher-Rock outcrop complex, 6 to 30 percent slopes			
CaG	6043	Tassel-Ponderosa-Rock outcrop association, 9 to 70 percent slopes	2	86	0.32
CaG1	6043	Tassel-Ponderosa-Rock outcrop association, 9 to 70 percent slopes			
	6045	Tassel-Rock outcrop complex, 9 to 70 percent slopes			
OsG	6048	Orella-Badland complex, 3 to 50 percent slopes	2	86	0.32
		Sarben and Vetal loamy very fine sands, 9 to 30 percent slopes	5	86	0.24
SvF	6090				

SrC	6091	Sarben fine sandy loam, 1 to 6 percent slopes	5	86	0.24
SrD	6092	Sarben fine sandy loam, 6 to 9 percent slopes	5	86	0.24
SrF	6093	Sarben fine sandy loam, 9 to 30 percent slopes	5	86	0.24
	6109	Sarben loamy very fine sand, 9 to 30 percent slopes			
EpF	6201	Epping silt loam, 3 to 30 percent slopes	2	86	0.43
EsG	6203	Epping-Badland complex, 3 to 60 percent slopes	2	86	0.43
KoB	6240	Keota silt loam, 1 to 3 percent slopes	4	86	0.37
AED	9971	Arents, earthen dam			
Ba	9973	Badland	0	0	0
GP	9983	Gravel pit			
M-W	9986	Miscellaneous water, sewage lagoon			
W	9999	Water	0	0	0
zwa	9999	Water	0	0	0

## Sheridan County, Nebraska

1990 Frozen Factors

C Factor = 0.5

R Factor = 50

Old Symbol	New Symbol	Soil Map Unit Name	T	I	K
Bc	1006	Bankard loamy fine sand, channeled, frequently flooded	5	134	0.1
La	1182	Las Animas loam, occasionally flooded	5	86	0.32
Bd	1320	Beckton silt loam, 0 to 2 percent slopes	2	38	0.32
Bm	1350	Bridget loam, 0 to 1 percent slopes	5	56	0.28
Bh	1361	Bridget very fine sandy loam, 0 to 1 percent slopes	5	86	0.32
BhB	1362	Bridget very fine sandy loam, 1 to 3 percent slopes	5	86	0.32
DuB	1545	Dailey loamy fine sand, 0 to 3 percent slopes	5	134	0.17
DuD	1546	Dailey loamy fine sand, 3 to 9 percent slopes	5	134	0.17
Ke	1617	Keith loam, 0 to 1 percent slopes	5	56	0.28
KeB	1618	Keith loam, 1 to 3 percent slopes	5	56	0.28



KeC	1621	Keith loam, 3 to 6 percent slopes	5	56	0.28
Kg	1625	Keith loam, gravelly substratum, 0 to 1 percent slopes	5	56	0.28
KgB	1626	Keith loam, gravelly substratum, 1 to 3 percent slopes	5	56	0.28
KgC	1627	Keith loam, gravelly substratum, 3 to 6 percent slopes	5	56	0.28
Lg	1662	Lodgepole silt loam, occasionally ponded	3	56	0.37
MbC	1690	Manvel silty clay loam, 3 to 6 percent slopes	5	86	0.43
	1698	Minnequa silty clay loam, 6 to 12 percent slopes			
RoB	1726	Rosebud loam, 1 to 3 percent slopes	4	56	0.28
SnB	1809	Satanta fine sandy loam, 1 to 3 percent slopes	5	86	0.2
SnC	1812	Satanta fine sandy loam, 3 to 6 percent slopes	5	86	0.2
SnD	1813	Satanta fine sandy loam, 6 to 9 percent slopes	5	86	0.2
SsE	1822	Satanta-Canyon complex, 12 to 20 percent slopes	5	86	0.2
SsD	1823	Satanta-Canyon complex, 6 to 12 percent slopes	5	86	0.2
VaF	1884	Valent complex, rolling and hilly	5	250	0.15
VaB	1885	Valent fine sand, 0 to 3 percent slopes	5	250	0.15
VaD	1886	Valent fine sand, 3 to 9 percent slopes	5	250	0.15
VaE	1889	Valent fine sand, rolling	5	250	0.15
VeB	1891	Valent loamy fine sand, 0 to 3 percent slopes	5	134	0.17
VeD	1892	Valent loamy fine sand, 3 to 9 percent slopes	5	134	0.17
	1894	Valent loamy fine sand, 9 to 20 percent slopes			
Mm	2001	McCook loam, channeled, frequently flooded	5	86	0.32
Mk	2302	McCook loam, rarely flooded	5	86	0.28
My	2360	Munjor fine sandy loam, rarely flooded	5	86	0.24
Mz	2361	Munjor fine sandy loam, channeled, frequently flooded	5	86	0.24
	3160	Doger and Dunday loamy fine sands, 0 to 2 percent slopes			
Jo	3201	Johnstown loam, 0 to 2 percent slopes	5	48	0.28
Kd	3210	Kadoka silt loam, 0 to 2 percent slopes	4	48	0.32
KdC	3211	Kadoka silt loam, 2 to 6 percent slopes	4	48	0.32
KdD	3212	Kadoka silt loam, 6 to 11 percent slopes	4	48	0.32
Lu	3228	Lute loam, 0 to 2 percent slopes	3	48	0.32
An	4205	Almeria loamy fine sand, channeled, frequently flooded	5	0	0.17
Bf	4223	Bolent loamy fine sand, occasionally flooded	5	134	0.17
Ca	4232	Calamus loamy fine sand, rarely flooded	5	134	0.17

Cr	4455	Crowther loam, 0 to 1 percent slopes	5	0	0.28
Cs	4456	Crowther loam, frequently ponded	5	0	0.28
Ec	4524	Els fine sand, calcareous, 0 to 3 percent slopes	5	250	0.15
Ef	4536	Els, calcareous-Hoffland complex, 0 to 3 percent slopes	5	250	0.15
EgB	4539	Els, calcareous-Ipage complex, 0 to 3 percent slopes	5	250	0.15
	4540	Els, calcareous-Selia fine sands, 0 to 3 percent slopes			
En	4541	Els, calcareous-Tryon complex, 0 to 3 percent slopes	5	250	0.15
	4545	Els-Ipage fine sands, 0 to 3 percent slopes			
Es	4553	Elsmere loamy fine sand, 0 to 3 percent slopes	5	134	0.17
Gg	4576	Gannett loam, 0 to 1 percent slopes	4	0	0.24
Gh	4579	Gannett loam, frequently ponded	4	0	0.24
Hm	4635	Hoffland fine sandy loam, 0 to 1 percent slopes	5	0	0.2
Hn	4636	Hoffland fine sandy loam, frequently ponded	5	0	0.2
IpB	4641	Ipage fine sand, 0 to 3 percent slopes	5	250	0.15
	4643	Ipage fine sand, calcareous, 0 to 3 percent slopes			
	4649	Ipage loamy fine sand, alkali substratum, 0 to 3 percent slopes			
Mc	4683	Marlake fine sandy loam, frequently ponded	2	0	0.2
OvD	4713	Orpha loamy fine sand, 3 to 9 percent slopes	5	134	0.17
OwF	4716	Orpha-Niobrara complex, 9 to 30 percent slopes	5	134	0.17
	4717	Orpha-Niobrara loamy fine sands, 9 to 30 percent slopes			
OxG	4718	Orpha-Rock outcrop complex, 30 to 60 percent slopes	5	250	0.17
To	4740	Tryon fine sandy loam, 0 to 3 percent slopes	5	0	0.2
Tp	4743	Tryon fine sandy loam, frequently ponded	5	0	0.17
VnF	4780	Valentine complex, rolling and hilly	5	250	0.15
	4781	Valentine fine sand, 0 to 3 percent slopes			
VnD	4791	Valentine fine sand, 3 to 9 percent slopes	5	250	0.15
	4794	Valentine fine sand, 9 to 17 percent slopes			
VaG	4800	Valentine fine sand, hilly	5	250	0.15
VnG	4800	Valentine fine sand, hilly	5	250	0.15
VnE	4807	Valentine fine sand, rolling	5	250	0.15
	4810	Valentine fine sand, rolling and hilly			
	4814	Valentine loamy fine sand, 0 to 3 percent slopes			

	4818	Valentine loamy fine sand, 3 to 9 percent slopes			
WrB	4894	Wildhorse fine sand, 0 to 3 percent slopes	5	250	0.15
WsB	4897	Wildhorse-Hoffland complex, 0 to 3 percent slopes	5	250	0.15
WtB	4898	Wildhorse-Ipage, calcareous complex, 0 to 3 percent slopes	5	250	0.15
BnB	5060	Buften silty clay loam, 1 to 3 percent slopes	5	86	0.37
Ac	5100	Alliance loam, 0 to 1 percent slopes	5	56	0.28
AcB	5101	Alliance loam, 1 to 3 percent slopes	5	56	0.28
AcC	5102	Alliance loam, 3 to 6 percent slopes	5	56	0.28
BnE	5115	Buften silty clay loam, 9 to 20 percent slopes	5	86	0.37
BoD	5117	Buften-Orella complex, 3 to 9 percent slopes	5	86	0.37
BsB	5119	Busher fine sandy loam, 0 to 3 percent slopes	5	86	0.2
BsC	5120	Busher fine sandy loam, 3 to 6 percent slopes	5	86	0.2
BsD	5121	Busher fine sandy loam, 6 to 9 percent slopes	5	86	0.2
BvC	5137	Busher-Tassel complex, 0 to 6 percent slopes	5	86	0.2
BvF	5139	Busher-Tassel complex, 6 to 30 percent slopes	5	86	0.2
	5141	Busher-Tassel fine sandy loams, 9 to 30 percent slopes			
Ky	5188	Keya loam, 0 to 2 percent slopes	5	48	0.32
OhC	5205	Oglala-Canyon complex, 3 to 6 percent slopes	5	56	0.32
OhD	5207	Oglala-Canyon complex, 6 to 9 percent slopes	5	56	0.32
OhF	5210	Oglala-Canyon complex, 9 to 30 percent slopes	5	56	0.32
On	5221	Onita silty clay loam, 0 to 1 percent slopes	5	38	0.28
PoC	5232	Ponderosa very fine sandy loam, 3 to 6 percent slopes	5	86	0.32
PoD	5233	Ponderosa very fine sandy loam, 6 to 9 percent slopes	5	86	0.32
PtF	5234	Ponderosa-Tassel-Vetal complex, 6 to 30 percent slopes	5	86	0.32
ThB	5260	Thirtynine loam, 1 to 3 percent slopes	5	56	0.28
ThC	5261	Thirtynine loam, 3 to 6 percent slopes	5	56	0.28
ThD	5262	Thirtynine loam, 6 to 9 percent slopes	5	56	0.28
TwB	5265	Tuthill fine sandy loam, 0 to 3 percent slopes	4	86	0.2
TwC	5266	Tuthill fine sandy loam, 3 to 6 percent slopes	4	86	0.2
TwD	5267	Tuthill fine sandy loam, 6 to 9 percent slopes	4	86	0.2
TtB	5268	Tuthill loamy fine sand, 0 to 3 percent slopes	5	134	0.17
TtD	5269	Tuthill loamy fine sand, 3 to 9 percent slopes	5	134	0.17

Vt	5281	Vetal fine sandy loam, 0 to 3 percent slopes	5	86	0.2
VsB	5288	Vetal loamy fine sand, 0 to 3 percent slopes	5	134	0.2
EuE	5351	Enning-Minnequa complex, 6 to 20 percent slopes	2	86	0.43
EvG	5352	Enning-Rock outcrop complex, 11 to 40 percent slopes	2	86	0.43
	5640	Haverson loam, frequently flooded			
MxF	5849	Mitchell-Epping complex, 9 to 30 percent slopes	5	86	0.43
Dw	5942	Duroc loam, 0 to 1 percent slopes	5	56	0.28
DwB	5943	Duroc loam, 1 to 3 percent slopes	5	56	0.28
	5947	Duroc very fine sandy loam, 1 to 3 percent slopes			
JgB	5965	Jayem fine sandy loam, 0 to 3 percent slopes	5	86	0.2
JgC	5966	Jayem fine sandy loam, 3 to 6 percent slopes	5	86	0.2
JgD	5967	Jayem fine sandy loam, 6 to 9 percent slopes	5	86	0.2
OrF	5988	Orella silty clay loam, 3 to 30 percent slopes	2	86	0.37
TgG	6043	Tassel-Ponderosa-Rock outcrop association, 9 to 70 percent slopes	2	86	0.37
TfG	6045	Tassel-Rock outcrop complex, 9 to 70 percent slopes	2	86	0.37
EwG	6203	Epping-Badland complex, 3 to 60 percent slopes	2	86	0.43
Fu	9903	Fluvaquents, sandy, frequently flooded	5	0	0.17
INT	9970	Aquolls			
MP	9975	Mine or quarry			
M-W	9986	Miscellaneous water, sewage lagoon			
W	9999	Water	0	0	0
zwa	9999	Water	0	0	0
zwb	9999	Water	0	0	0

**Sioux County, Nebraska**

1990 Frozen Factors

C Factor = 0.5

R Factor = 50

<b>Old Symbol</b>	<b>New Symbol</b>	<b>Soil Map Unit Name</b>	<b>T</b>	<b>I</b>	<b>K</b>
Bd	1006	Bankard loamy fine sand, channeled, frequently flooded	5	134	0.17
Go	1030	Glenberg fine sandy loam, 0 to 2 percent slopes	5	86	0.24
Gp	1031	Glenberg fine sandy loam, channeled, frequently flooded	5	86	0.24
Bc	1114	Bankard loamy fine sand, occasionally flooded	5	134	0.17
La	1180	Las Animas fine sandy loam, occasionally flooded	4	86	0.24
Lb	1181	Las Animas fine sandy loam, channeled, frequently flooded	5	86	0.24
Lc	1188	Las Animas-Lisco complex, occasionally flooded	4	86	0.37
BeB	1300	Bayard fine sandy loam, 1 to 3 percent slopes	5	86	0.2
BeC	1301	Bayard fine sandy loam, 3 to 6 percent slopes	5	86	0.2
Be	1326	Bayard fine sandy loam, 0 to 1 percent slopes	5	86	0.2
BrC	1363	Bridget very fine sandy loam, 3 to 6 percent slopes	5	86	0.32
BgC	1363	Bridget very fine sandy loam, 3 to 6 percent slopes			
BrD	1364	Bridget very fine sandy loam, 6 to 9 percent slopes	5	86	0.32
BgD	1364	Bridget very fine sandy loam, 6 to 9 percent slopes			
BrF	1365	Bridget very fine sandy loam, 9 to 20 percent slopes	5	86	0.32
BgF	1365	Bridget very fine sandy loam, 9 to 20 percent slopes			
KeB	1618	Keith loam, 1 to 3 percent slopes	5	56	0.28
KeC	1621	Keith loam, 3 to 6 percent slopes	5	56	0.28
OwB	1704	Otero loamy very fine sand, 0 to 3 percent slopes	5	134	0.24
SfB	1818	Satanta very fine sandy loam, 1 to 3 percent slopes	5	86	0.32
StB	1818	Satanta very fine sandy loam, 1 to 3 percent slopes			
SfC	1819	Satanta very fine sandy loam, 3 to 6 percent slopes	5	86	0.32
StC	1819	Satanta very fine sandy loam, 3 to 6 percent slopes			
VaF	1884	Valent complex, rolling and hilly	5	250	0.15
VaB	1885	Valent fine sand, 0 to 3 percent slopes	5	250	0.15

VaD	1886	Valent fine sand, 3 to 9 percent slopes	5	250	0.15
VaE	1889	Valent fine sand, rolling	5	250	0.15
VbB	1891	Valent loamy fine sand, 0 to 3 percent slopes	5	134	0.17
VbD	1892	Valent loamy fine sand, 3 to 9 percent slopes	5	134	0.17
WhB	4895	Wildhorse loamy fine sand, 0 to 3 percent slopes	5	134	0.17
Wh	4895	Wildhorse loamy fine sand, 0 to 3 percent slopes			
In	5000	Interior silty clay, channeled, frequently flooded	5	86	0.32
Lh	5004	Lohmiller silty clay loam, rarely flooded	5	86	0.37
Lo	5005	Lohmiller silty clay loam, channeled, frequently flooded	5	86	0.37
Ls	5006	Lohmiller silty clay, occasionally flooded	5	86	0.28
Lm	5006	Lohmiller silty clay, occasionally flooded			
Pa	5025	Pathfinder loamy fine sand, rarely flooded	5	134	0.17
ArB	5050	Arvada loam, 0 to 3 percent slopes	5	56	0.32
Ar	5050	Arvada loam, 0 to 3 percent slopes			
Bs	5055	Buften clay loam, 0 to 1 percent slopes	5	86	0.37
Bn	5055	Buften clay loam, 0 to 1 percent slopes			
BsB	5056	Buften clay loam, 1 to 3 percent slopes	5	86	0.37
BnB	5056	Buften clay loam, 1 to 3 percent slopes			
AcB	5101	Alliance loam, 1 to 3 percent slopes	4	56	0.28
AcC	5102	Alliance loam, 3 to 6 percent slopes	4	56	0.28
BbB	5111	Bahl clay, 0 to 6 percent slopes	5	86	0.32
BsD	5112	Buften clay loam, 3 to 9 percent slopes	5	86	0.37
BnD	5112	Buften clay loam, 3 to 9 percent slopes			
BsE	5113	Buften clay loam, 9 to 20 percent slopes	5	86	0.43
BnF	5113	Buften clay loam, 9 to 20 percent slopes			
BuB	5122	Busher loamy very fine sand, 0 to 3 percent slopes	4	134	0.2
BuC	5125	Busher loamy very fine sand, 3 to 6 percent slopes	4	134	0.2
BuD	5126	Busher loamy very fine sand, 6 to 9 percent slopes	4	134	0.2
BwC	5136	Busher-Phiferon complex, 0 to 6 percent slopes	4	134	0.2
BtC	5136	Busher-Phiferon complex, 0 to 6 percent slopes			
BxC	5137	Busher-Tassel complex, 0 to 6 percent slopes	4	134	0.2
BvC	5137	Busher-Tassel complex, 0 to 6 percent slopes			
BxE	5139	Busher-Tassel complex, 6 to 30 percent slopes	4	134	0.2

BvE	5139	Busher-Tassel complex, 6 to 30 percent slopes			
NrB	5191	Norrest clay loam, 1 to 3 percent slopes	4	48	0.37
NrD	5192	Norrest clay loam, 3 to 9 percent slopes	4	48	0.37
	5197	Norrest silty clay loam, 9 to 20 percent slopes			
OgB	5201	Oglala very fine sandy loam, 1 to 3 percent slopes	4	86	0.32
OgC	5202	Oglala very fine sandy loam, 3 to 6 percent slopes	4	86	0.32
OgD	5203	Oglala very fine sandy loam, 6 to 9 percent slopes	4	86	0.32
OnD	5206	Oglala-Canyon complex, 3 to 9 percent slopes	4	86	0.32
OnF	5210	Oglala-Canyon complex, 9 to 30 percent slopes	4	86	0.32
PrC	5225	Pierre clay, 1 to 6 percent slopes	3	86	0.37
PrE	5226	Pierre clay, 6 to 20 percent slopes	3	86	0.37
Psd	5230	Ponderosa loamy very fine sand, 6 to 9 percent slopes	5	134	0.2
PoD	5230	Ponderosa loamy very fine sand, 6 to 9 percent slopes			
Pse	5231	Ponderosa loamy very fine sand, 9 to 20 percent slopes	5	134	0.2
Poe	5231	Ponderosa loamy very fine sand, 9 to 20 percent slopes			
PtF	5234	Ponderosa-Tassel-Vetal complex, 6 to 30 percent slopes	5	134	0.2
SbF	5241	Samsil-Pierre complex, 3 to 30 percent slopes	2	86	0.37
ScG	5242	Samsil-Rock outcrop complex, 9 to 50 percent slopes	2	86	0.37
ShG	5242	Samsil-Rock outcrop complex, 9 to 50 percent slopes			
Sg	5247	Savo silty clay loam, 0 to 3 percent slopes	5	38	0.32
Sv	5247	Savo silty clay loam, 0 to 3 percent slopes			
SgC	5248	Savo silty clay loam, 3 to 6 percent slopes	5	38	0.32
SvC	5248	Savo silty clay loam, 3 to 6 percent slopes			
SrF	5253	Schamber gravelly sandy loam, 3 to 30 percent slopes	2	134	0.2
SyF	5253	Schamber gravelly sandy loam, 3 to 30 percent slopes			
TtB	5260	Thirtynine loam, 1 to 3 percent slopes	5	56	0.28
KaB	5260	Thirtynine loam, 1 to 3 percent slopes			
TtC	5261	Thirtynine loam, 3 to 6 percent slopes	5	56	0.28
KaC	5261	Thirtynine loam, 3 to 6 percent slopes			
TtD	5262	Thirtynine loam, 6 to 9 percent slopes	5	56	0.28
KaD	5262	Thirtynine loam, 6 to 9 percent slopes			
VcB	5281	Vetal fine sandy loam, 0 to 3 percent slopes	5	86	0.2
VhB	5281	Vetal fine sandy loam, 0 to 3 percent slopes			

VgB	5291	Vetal very fine sandy loam, 1 to 3 percent slopes	5	86	0.32
VgC	5292	Vetal very fine sandy loam, 3 to 6 percent slopes	5	86	0.32
HsC	5355	Hisle-Slickspots complex, 0 to 6 percent slopes	2	48	0.32
Ky	5358	Kyle silty clay, 0 to 1 percent slopes	5	86	0.37
KyC	5359	Kyle silty clay, 1 to 6 percent slopes	5	86	0.37
Bh	5600	Bigwinder fine sandy loam, frequently flooded	5	86	0.32
Lp	5600	Bigwinder fine sandy loam, frequently flooded			
Cr	5610	Craft loam, 0 to 2 percent slopes	5	86	0.32
Hb	5610	Craft loam, 0 to 2 percent slopes			
Cs	5611	Craft loam, occasionally flooded	5	86	0.32
Ha	5611	Craft loam, occasionally flooded			
Ct	5612	Craft loam, channeled, frequently flooded	5	86	0.32
Hc	5612	Craft loam, channeled, frequently flooded			
DpB	5620	Draknab loamy fine sand, 0 to 3 percent slopes	5	134	0.17
Ld	5656	Lisco very fine sandy loam, occasionally flooded	5	86	0.37
Mt	5834	Mitchell silt loam, 0 to 1 percent slopes	5	86	0.43
MtB	5835	Mitchell silt loam, 1 to 3 percent slopes	5	86	0.43
MtC	5837	Mitchell silt loam, 3 to 6 percent slopes	5	86	0.43
MtD	5838	Mitchell silt loam, 6 to 9 percent slopes	5	86	0.43
MtE	5839	Mitchell silt loam, 9 to 20 percent slopes	5	86	0.43
Mr	5843	Mitchell very fine sandy loam, 0 to 1 percent slopes	5	86	0.43
MrB	5844	Mitchell very fine sandy loam, 1 to 3 percent slopes	5	86	0.43
MrC	5845	Mitchell very fine sandy loam, 3 to 6 percent slopes	5	86	0.43
MxD	5848	Mitchell-Epping complex, 3 to 9 percent slopes	5	86	0.43
MwD	5848	Mitchell-Epping complex, 3 to 9 percent slopes			
MxF	5849	Mitchell-Epping complex, 9 to 30 percent slopes	5	86	0.43
Ss	5855	Scoville fine sand, 0 to 1 percent slopes	5	220	0.15
Sm	5855	Scoville fine sand, 0 to 1 percent slopes			
SsB	5856	Scoville fine sand, 1 to 3 percent slopes	5	220	0.15
SmB	5856	Scoville fine sand, 1 to 3 percent slopes			
Su	5857	Scoville loamy fine sand, 0 to 1 percent slopes	5	134	0.17
So	5857	Scoville loamy fine sand, 0 to 1 percent slopes			
SuB	5858	Scoville loamy fine sand, 0 to 3 percent slopes	5	134	0.17



SoB	5858	Scoville loamy fine sand, 0 to 3 percent slopes			
SxE	5862	Skilak silty clay loam, 6 to 20 percent slopes	5	86	0.49
OuF	5862	Skilak silty clay loam, 6 to 20 percent slopes			
Tv	5873	Tripp very fine sandy loam, 0 to 1 percent slopes	5	86	0.32
TvB	5874	Tripp very fine sandy loam, 1 to 3 percent slopes	5	86	0.32
Ab	5900	Alice fine sandy loam, 0 to 1 percent slopes	5	86	0.2
AbB	5901	Alice fine sandy loam, 0 to 3 percent slopes	5	86	0.2
AbC	5902	Alice fine sandy loam, 3 to 6 percent slopes	5	86	0.2
AwD	5915	Ashollow loamy very fine sand, 3 to 9 percent slopes	5	134	0.24
OwD	5915	Ashollow loamy very fine sand, 3 to 9 percent slopes			
AwE	5916	Ashollow loamy very fine sand, 9 to 20 percent slopes	5	134	0.24
OwE	5916	Ashollow loamy very fine sand, 9 to 20 percent slopes			
BoG	5926	Blueridge gravelly loamy sand, 20 to 50 percent slopes	2	134	0.1
DoG	5926	Blueridge gravelly loamy sand, 20 to 50 percent slopes			
BpE	5928	Blueridge-Bayard complex, 6 to 20 percent slopes	5	134	0.17
DoE	5928	Blueridge-Bayard complex, 6 to 20 percent slopes			
JmB	5976	Jayem loamy very fine sand, 0 to 3 percent slopes	5	134	0.2
JmC	5979	Jayem loamy very fine sand, 3 to 6 percent slopes	5	134	0.2
JmD	5980	Jayem loamy very fine sand, 6 to 9 percent slopes	5	134	0.2
RkG	5983	Rock outcrop-Tassel complex, 9 to 70 percent slopes	0	0	0
OpD	5984	Olney loam, 3 to 9 percent slopes	5	86	0.24
PhF	5985	Phiferson-Tassel-Rock outcrop complex, 6 to 30 percent slopes	3	134	0.24
OrF	5987	Orella clay, 1 to 30 percent slopes	2	86	0.32
SeB	6012	Sarben-Busher complex, 0 to 3 percent slopes	5	134	0.24
SpB	6012	Sarben-Busher complex, 0 to 3 percent slopes			
SeD	6013	Sarben-Busher complex, 3 to 9 percent slopes	5	134	0.24
SpD	6013	Sarben-Busher complex, 3 to 9 percent slopes			
TbG	6031	Tassel-Ashollow-Rock outcrop complex, 9 to 60 percent slopes	2	134	0.24
TgF	6036	Tassel-Busher-Rock outcrop complex, 6 to 30 percent slopes	2	134	0.24
TbF	6036	Tassel-Busher-Rock outcrop complex, 6 to 30 percent slopes			

TrG	6043	Tassel-Ponderosa-Rock outcrop association, 9 to 70 percent slopes	2	134	0.24
OsG	6048	Orella-Badland complex, 3 to 50 percent slopes	2	86	0.32
SdD	6105	Sarben loamy very fine sand, 3 to 9 percent slopes	5	134	0.24
SnD	6105	Sarben loamy very fine sand, 3 to 9 percent slopes			
SdF	6109	Sarben loamy very fine sand, 9 to 30 percent slopes	5	134	0.24
SnF	6109	Sarben loamy very fine sand, 9 to 30 percent slopes			
EpF	6201	Epping silt loam, 3 to 30 percent slopes	2	86	0.43
EsG	6203	Epping-Badland complex, 3 to 60 percent slopes	2	86	0.43
Fu	9903	Fluvaquents, sandy, frequently flooded	5	0	0.17
Mo	9903	Fluvaquents, sandy, frequently flooded			
INT	9970	Aquolls			
AED	9971	Arents, earthen dam			
Ba	9973	Badland	0	0	0
M-W	9986	Miscellaneous water, sewage lagoon			
W	9999	Water	0	0	0
zw	9999	Water	0	0	0

## Appendix B

### Recommended Practices for Controlling Erosion and Sedimentation

The following practices are listed in three general categories: permanent agricultural, temporary agricultural, and non-agricultural. The lists are not mutually exclusive in that some practices are on more than one list. All practices on the lists are deemed to be suitable under proper circumstances, for controlling erosion and sedimentation within the District. Many are potential components of resource management systems for lands in the District. Actual application depends on the particular circumstances and needs being addressed. NRCS has plans, specifications, or technical guides for most of these practices.

#### 1. Permanent Soil and Water Conservation Practices for Controlling Erosion and Sedimentation on Agricultural Lands

Permanent soil and water conservation practices are activities which often are part of an on-going (longer than one year) resource management system and may be recommended and adopted as part of a conservation plan. For those practices found on both this list and the "Temporary Soil and Water Conservation Practices" lists, the District will determine on a case by case basis whether the practice is required as a permanent or temporary measure.

- Channel Vegetation
- Critical Area Planting
- Diversions
- Field Borders
- Field Windbreaks
- Gabions
- Grade Stabilization Structures
- Grassed Waterways or Outlets
- Pasture and Hayland Planting
- Sediment Retention Basins
- Terraces
- Tree Plantings
- Underground Outlets
- Water and Sediment Control Structures

#### 2. Temporary Soil and Water Conservation Practices for Controlling Erosion and Sedimentation on Agricultural Lands

Temporary soil and water conservation practices range from one-time only actions to activities which could continue for a number of years. Those on-going activities generally involve management decisions where a practice may be maintained, modified, or eliminated on an annual basis, rather than practices involving more permanent construction or installation activities. These practices generally require no, or lower, capital investments, and the availability of cost share assistance is not required.

- Conservation Cropping Systems
- Conservation Tillage Systems

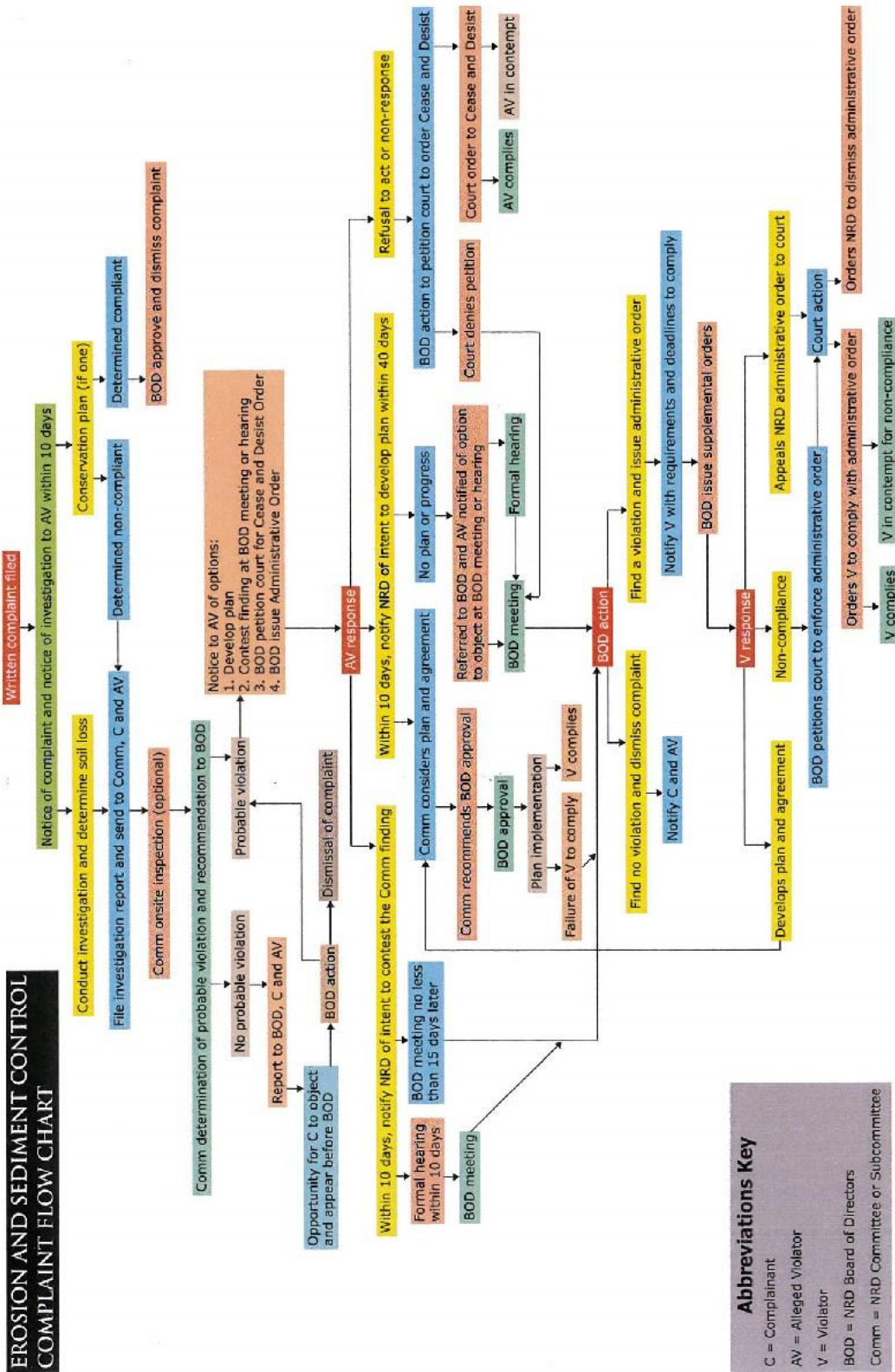
- Contour Farming
- Cover and Green Manure Crop
- Crop Residue Management
- Livestock Exclusion
- Mulching
- Pasture and Hayland Management
- Contour Strip Cropping

3. Erosion and Sediment Control Practices for Controlling Erosion and Sedimentation on Land Not used for Agriculture, Horticulture, or Silvicultural Purposes

There are many land disturbing activities which, are not related to agriculture, horticulture, or silviculture. Erosion and sedimentation as a result of these activities can be a significant problem. The following practices include permanent and temporary structure and devices that may be required to treat erosion on, *and* sedimentation from, these lands, but cost share assistance need not be made available.

- Channel Vegetation
- Check Dams
- Chutes/Flumes
- Cover Crops
- Critical Area Planting
- Dams
- Dikes
- Diversions
- Gabions
- Grade Stabilization Structures
- Grassed Waterways or Outlets
- Interceptor or Perimeter Swales
- Lining of Waterways or Outlets
- Mulching
- Riprap
- Roadside Seeding
- Sandbag Sediment Barriers
- Silt Fences
- Straw Bale Sediment Barriers
- Stream Channel Stabilization
- Terraces
- Tree Plantings
- Underground Outlets
- Water and Sediment Control Structures

**Appendix C**



# NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES



Pete Ricketts, Governor

December 12, 2016

Pat O'Brien  
General Manager  
Upper Niobrara White NRD  
430 East 2<sup>nd</sup> Street  
Chadron, NE 69337

Dear Pat:

Thank you for filing the Upper Niobrara White NRD's amended Erosion and Sediment Control program. After review, the Nebraska Natural Resources Commission, on December 12<sup>th</sup>, 2016, recommended approval.

My staff and I have also reviewed your district's program and I find it to be reasonable, attainable, and in conformance with the state Erosion and Sediment Control Program. Therefore, in accordance with § 2-4605, I hereby approve the Upper Niobrara White NRD's amended Erosion and Sediment Control program.

Sincerely,

A handwritten signature in blue ink that reads "Jeff".

Gordon W. "Jeff" Fassett  
Director

Gordon W. "Jeff" Fassett, P.E., Director

**Department of Natural Resources**

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