United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with United States Department of the Interior, Bureau of Land Management, and Montana Agricultural Experiment Station

Soil Survey of Phillips County Area, Montana Part II

How to Use This Soil Survey

This survey is divided into three parts. Part I includes general information about the survey area; descriptions of the detailed soil map units and soil series in the area; and a description of how the soils formed. Part II describes the use and management of the soils and the major soil properties. This part may be updated as further information about soil management becomes available. Part III includes the maps.

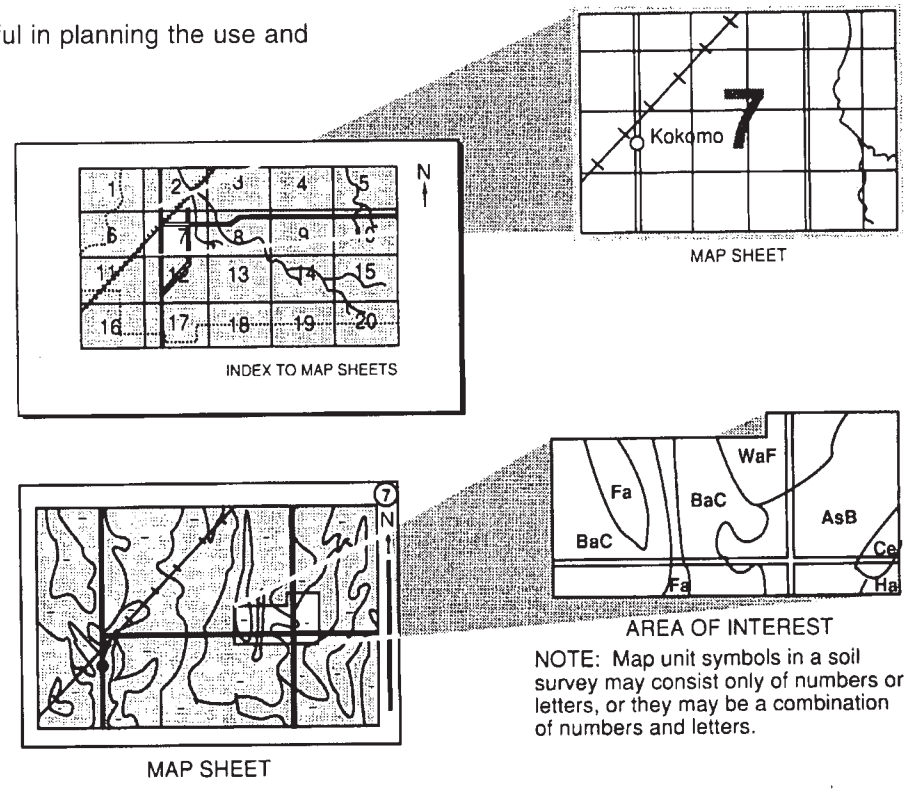
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area in the **Index to Map Sheets** which precedes the soil maps. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** in Part I of this survey which lists the map units by symbol and name and shows the page where each map unit is described.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

A **State Soil Geographic Data Base** (STATSGO) is available for this survey area. This data base consists of a soils map at a scale of 1:250,000 along with groups of associated soils. It replaces the general soils map published in older surveys. This map and its data base can be useful for planning multi-county areas and map output can be tailored for specific uses. For more information about the State Soil Geographic Data Base for this survey area, or for any portion of Montana, contact your local Natural Resources Conservation Service office.

This soil survey is a publication 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 agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1993. Soil names and descriptions were approved in 1993. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1993. This survey was made cooperatively by the Natural Resources Conservation Service, United States Department of Interior - Bureau of Land Management, U.S. Fish and Wildlife Service, and the Montana Agricultural Experiment Station. It is part of the technical assistance furnished to the Phillips County Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover: Fourchette Bay area on Fort Peck Reservoir in southern Phillips County.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov.

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Issued 2004

Detailed Soil Map Unit Legend

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11B—Degrand loam, 0 to 4 percent slopes
13B—Beaverton gravelly loam, 0 to 4 percent slopes
25C—Bascovy clay, 2 to 8 percent slopes
28A—Nishon clay loam, 0 to 2 percent slopes
29A—McKenzie clay, 0 to 2 percent slopes
30A—Marvan clay, 0 to 2 percent slopes
31B—Ferd loam, 0 to 4 percent slopes
32B—Kobase silty clay loam, 0 to 4 percent slopes
33B—Phillips loam, 0 to 4 percent slopes
35C—Assinniboine fine sandy loam, 2 to 8 percent slopes
36C—Chinook fine sandy loam, 2 to 8 percent slopes
37B—Evanston loam, 0 to 4 percent slopes
37C—Evanston loam, 4 to 8 percent slopes
38B—Ethridge clay loam, 0 to 4 percent slopes
38C—Ethridge clay loam, 4 to 8 percent slopes
41A—Vaeda clay, 0 to 2 percent slopes
43A—Pendroy clay, 0 to 2 percent slopes
48A—Vanda clay, 0 to 2 percent slopes
49A—Lardell clay loam, 0 to 2 percent slopes
50B—Telstad loam, 0 to 4 percent slopes
52B—Elloam clay loam, 0 to 4 percent slopes
56B—Scobey clay loam, 0 to 4 percent slopes
59B—Weingart clay loam, 0 to 4 percent slopes
60A—Havre loam, 0 to 2 percent slopes
75C—Farnuf loam, 2 to 8 percent slopes
79C—Yamacall loam, 2 to 8 percent slopes
81A—Glendive loam, 0 to 2 percent slopes
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82C—Savage silty clay loam, 4 to 8 percent slopes
84F—Macmeal complex, 25 to 60 percent slopes
90A—Harlake clay, 0 to 2 percent slopes
93A—Bowdoin clay, 0 to 2 percent slopes
94C—Busby fine sandy loam, 2 to 8 percent slopes
94D—Busby fine sandy loam, 8 to 15 percent slopes
96D—Megonot-Kobase silty clay loams, 8 to 15 percent slopes
97D—Neldore-Bascovy clays, 4 to 15 percent slopes
100A—Hanly fine sandy loam, 0 to 2 percent slopes
101E—Barkof-Windham complex, 8 to 25 percent slopes
110C—Attewan-Beaverell complex, 0 to 8 percent slopes
115F—Silverchief-Whitecow-Macmeal complex, 15 to 60 percent slopes
120F—Mocmont complex, 25 to 60 percent slopes
121F—Mocmont-Tolex complex, 25 to 60 percent slopes
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212B—Thoeny-Elloam complex, 0 to 4 percent slopes
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221D—Hillon-Kevin complex, 8 to 15 percent slopes
221E—Hillon-Kevin complex, 15 to 25 percent slopes
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271D—Beaverell-Evanston complex, 8 to 15 percent slopes
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302B—Marvan-Vanda clays, 0 to 8 percent slopes

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312B—Ferd-Absher complex, 0 to 4 percent slopes
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332B—Phillips-Elloam complex, 0 to 4 percent slopes
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563C—Scobey-Kevin clay loams, 2 to 8 percent slopes
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566C—Scobey-Kevin complex, 2 to 8 percent slopes
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603A—Havre clay, 0 to 2 percent slopes
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871B—Tamaneen-Danvers clay loams, 0 to 4 percent slopes
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1332C—Phillips-Elloam-Thoeny association, 0 to 8 percent slopes
1333C—Kevin-Phillips-Elloam association, 2 to 15 percent slopes
1373C—Evanston-Chinook-Marmarth association, 0 to 8 percent slopes
1392B—Creed-Gerdrum-Absher association, 0 to 4 percent slopes
1400F—Rock outcrop-Arsite association, 8 to 60 percent slopes
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1920F—Sunburst-Neldore association, 15 to 45 percent slopes
1970F—Neldore-Bascovy-Rock outcrop association, 8 to 60 percent slopes
1971F—Yawdim-Cabbart-Rock outcrop association, 25 to 70 percent slopes
1972F—Volborg-Rock outcrop association, 8 to 45 percent slopes
1973F—Neldore, moist-Neldore-Rock outcrop association, 15 to 60 percent slopes
1976F—Neldore-Pinebreaks-Bascovy association, 15 to 60 percent slopes
1977F—Volborg-Pinebreaks-Rock outcrop association, 15 to 60 percent slopes
2972F—Volborg-Neldore-Rock outcrop association, 15 to 60 percent slopes
W—Water

Summary of Tables

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Soil Survey of Phillips County Area, Montana

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Interpretive ratings help engineers, planners, and others understand how soil properties influence important nonagricultural uses, such as building site development and construction materials. The ratings indicate the most restrictive soil features affecting the suitability of the soils for these uses.

Soils are rated in their natural state. No unusual modification of the soil site or material is made other than that which is considered normal practice for the rated use. Even though soils may have limitations, it is important to remember that engineers and others can modify soil features or can design or adjust the plans for a structure to compensate for most of the limitations. Most of these practices, however, are costly. The final decision in selecting a site for a particular use generally involves weighing the costs of site preparation and maintenance.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

The classification and extent of the soils in this survey area are shown in the tables "Classification of the Soils" and "Acreage and Proportionate Extent of the Soils," which are at the end of this section.

Classification of the Soils

Soil name	Family or higher taxonomic class
Absher	Fine, montmorillonitic Typic Natriboralfs
Arsite	Clayey, montmorillonitic, nonacid, frigid, shallow Aridic Ustorthents
Assinniboine	Fine-loamy, mixed Aridic Argiborolls
Attewan	Fine-loamy over sandy or sandy-skeletal, mixed Aridic Argiborolls
Barkof	Fine, montmorillonitic, frigid Leptic Udic Haplusterts
Bascovy	Fine, montmorillonitic, frigid Leptic Udic Haplusterts
Beaverell	Loamy-skeletal over sandy or sandy-skeletal, mixed Aridic Argiborolls
Beaverton	Loamy-skeletal over sandy or sandy-skeletal, mixed Typic Argiborolls
Benz	Fine-loamy, mixed (calcareous), frigid Aridic Ustorthents
Bigsag	Fine, montmorillonitic (calcareous), frigid Typic Halaquepts
Binna	Fine-loamy over sandy or sandy-skeletal, mixed Aridic Calciborolls
Bowdoin	Very-fine, montmorillonitic, frigid Sodic Haplusterts
Bullhook	Fine-loamy, mixed (calcareous), frigid Aridic Ustifluvents
Busby	Coarse-loamy, mixed, frigid Aridic Ustochrepts
Cabba	Loamy, mixed (calcareous), frigid, shallow Typic Ustorthents
Cabbart	Loamy, mixed (calcareous), frigid, shallow Aridic Ustorthents
Chinook	Coarse-loamy, mixed Aridic Haploborolls
Creed	Fine, montmorillonitic Typic Natriboralfs
Danvers	Fine, montmorillonitic Typic Argiborolls
Degrand	Fine-loamy over sandy or sandy-skeletal, mixed Aridic Argiborolls
Delpoint	Fine-loamy, mixed, frigid Aridic Ustochrepts
Dimmick	Fine, montmorillonitic, frigid Vertic Epiaquolls
Elloam	Fine, montmorillonitic Typic Natriboralfs
Ethridge	Fine, montmorillonitic Aridic Argiborolls
Evanston	Fine-loamy, mixed Aridic Argiborolls
Farnuf	Fine-loamy, mixed Typic Argiborolls
Ferd	Fine, montmorillonitic Glossic Eutroboralfs
Fortbenton	Fine-loamy, mixed Aridic Haploborolls
Gerdrum	Fine, montmorillonitic Typic Natriboralfs
Glendive	Coarse-loamy, mixed (calcareous), frigid Aridic Ustifluvents
Hanly	Sandy, mixed, frigid Aridic Ustifluvents
Harlake	Fine, montmorillonitic (calcareous), frigid Aridic Ustifluvents
Havre	Fine-loamy, mixed (calcareous), frigid Aridic Ustifluvents
Hillon	Fine-loamy, mixed (calcareous), frigid Aridic Ustorthents
Joplin	Fine-loamy, mixed Aridic Argiborolls
Judith	Fine-loamy, carbonatic Typic Calciborolls
Kevin	Fine-loamy, mixed Aridic Argiborolls
Kobase	Fine, montmorillonitic, frigid Aridic Ustochrepts
Lallie	Fine, montmorillonitic (calcareous), frigid Vertic Fluvaquents
Landusky	Fragmental, mixed, frigid Typic Ustorthents
Lardell	Fine-loamy, mixed, frigid Aquollic Salorthids
Lostriver	Fine, montmorillonitic (calcareous), frigid Aridic Ustifluvents
Macmeal	Loamy-skeletal, mixed Typic Eutroboralfs
Marmarth	Fine-loamy, mixed Aridic Argiborolls
Martinsdale	Fine-loamy, mixed Typic Argiborolls
Marvan	Fine, montmorillonitic, frigid Sodic Haplusterts
McKenzie	Fine, montmorillonitic, frigid Chromic Endoaquerts
Megonot	Fine, montmorillonitic, frigid Aridic Ustochrepts
Mocmont	Loamy-skeletal, mixed Glossic Eutroboralfs
Neldore	Clayey, montmorillonitic, nonacid, frigid, shallow Aridic Ustorthents
Nesda	Sandy-skeletal, mixed Fluventic Haploborolls
Nishon	Fine, montmorillonitic, frigid Typic Albaqualfs
Nobe	Fine, montmorillonitic (calcareous), frigid Oxyaquic Ustorthents
Pendroy	Very-fine, montmorillonitic, frigid Chromic Udic Haplusterts
Phillips	Fine, montmorillonitic Typic Eutroboralfs
Pinebreaks	Clayey, montmorillonitic, acid, frigid, shallow Typic Ustorthents
Savage	Fine, montmorillonitic Typic Argiborolls
Saypo	Fine-loamy, mixed Aquic Calciborolls
Scobey	Fine, montmorillonitic Aridic Argiborolls
Silverchief	Fine, mixed Typic Eutroboralfs

Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Sunburst	Fine, montmorillonitic (calcareous), frigid Aridic Ustorthents
Tamaneen	Fine, montmorillonitic Typic Argiborolls
Telstad	Fine-loamy, mixed Aridic Argiborolls
Thoeny	Fine, montmorillonitic Typic Natriboralfs
Tinsley	Sandy-skeletal, mixed, frigid Typic Ustorthents
Tolex	Loamy-skeletal, mixed Lithic Eutroboralfs
Toston	Fine-loamy, mixed Typic Natriboralfs
Twilight	Coarse-loamy, mixed, frigid Aridic Ustochrepts
Vaeda	Fine, montmorillonitic, nonacid, frigid Aridic Ustorthents
Vanda	Fine, montmorillonitic (calcareous), frigid Aridic Ustorthents
Volborg	Clayey, montmorillonitic, acid, frigid, shallow Aridic Ustorthents
Warneke	Loamy-skeletal, carbonatic, frigid Lithic Ustochrepts
Weingart	Fine, montmorillonitic Typic Natriboralfs
Wheatbelt	Very-fine, montmorillonitic, frigid Sodic Epiaquerts
Whitecow	Loamy-skeletal, carbonatic, frigid Calcic Ustochrepts
Windham	Loamy-skeletal, carbonatic Typic Calciborolls
Yamacall	Fine-loamy, mixed, frigid Aridic Ustochrepts
Yawdim	Clayey, montmorillonitic (calcareous), frigid, shallow Aridic Ustorthents
Yetull	Mixed, frigid Typic Ustipsamments

Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
10C	Barkof clay, 2 to 8 percent slopes	261	*
11B	Degrand loam, 0 to 4 percent slopes	3,982	0.1
13B	Beaverton gravelly loam, 0 to 4 percent slopes	462	*
25C	Bascovy clay, 2 to 8 percent slopes	4,858	0.2
28A	Nishon clay loam, 0 to 2 percent slopes	14,432	0.4
29A	McKenzie clay, 0 to 2 percent slopes	2,710	*
30A	Marvan clay, 0 to 2 percent slopes	7,859	0.2
31B	Ferd loam, 0 to 4 percent slopes	2,097	*
32B	Kobase silty clay loam, 0 to 4 percent slopes	14,528	0.5
33B	Phillips loam, 0 to 4 percent slopes	2,037	*
35C	Assinniboine fine sandy loam, 2 to 8 percent slopes	4,213	0.1
36C	Chinook fine sandy loam, 2 to 8 percent slopes	2,790	*
37B	Evanston loam, 0 to 4 percent slopes	27,899	0.9
37C	Evanston loam, 4 to 8 percent slopes	5,562	0.2
38B	Ethridge clay loam, 0 to 4 percent slopes	21,444	0.7
38C	Ethridge clay loam, 4 to 8 percent slopes	1,915	*
41A	Vaeda clay, 0 to 2 percent slopes	40,650	1.3
43A	Pendroy clay, 0 to 2 percent slopes	15,524	0.5
48A	Vanda clay, 0 to 2 percent slopes	6,153	0.2
49A	Lardell clay loam, 0 to 2 percent slopes	6,926	0.2
50B	Telstad loam, 0 to 4 percent slopes	16,759	0.5
52B	Elloam clay loam, 0 to 4 percent slopes	678	*
56B	Scobey clay loam, 0 to 4 percent slopes	34,773	1.1
59B	Weingart clay loam, 0 to 4 percent slopes	490	*
60A	Havre loam, 0 to 2 percent slopes	34,479	1.1
75C	Farnuf loam, 2 to 8 percent slopes	1,515	*
79C	Yamacall loam, 2 to 8 percent slopes	5,033	0.2
81A	Glendive loam, 0 to 2 percent slopes	1,440	*
82B	Savage silty clay loam, 0 to 4 percent slopes	1,450	*
82C	Savage silty clay loam, 4 to 8 percent slopes	307	*
84F	Macmeal complex, 25 to 60 percent slopes	1,258	*
90A	Harlake clay, 0 to 2 percent slopes	34,359	1.1
93A	Bowdoin clay, 0 to 2 percent slopes	31,458	1.0
94C	Busby fine sandy loam, 2 to 8 percent slopes	1,448	*
94D	Busby fine sandy loam, 8 to 15 percent slopes	506	*
96D	Megonot-Kobase silty clay loams, 8 to 15 percent slopes	741	*
97D	Neldore-Bascovy clays, 4 to 15 percent slopes	6,145	0.2
100A	Hanly fine sandy loam, 0 to 2 percent slopes	344	*
101E	Barkof-Windham complex, 8 to 25 percent slopes	9,884	0.3
110C	Attewan-Beaverell complex, 0 to 8 percent slopes	10,629	0.3
115F	Silverchief-Whitecow-Macmeal complex, 15 to 60 percent slopes	2,513	*
120F	Mocmont complex, 25 to 60 percent slopes	2,625	*
121F	Mocmont-Tolex complex, 25 to 60 percent slopes	9,475	0.3
122F	Mocmont-Landusky complex, 25 to 60 percent slopes	2,277	*
130F	Rubble land-Mocmont-Rock outcrop complex, 25 to 60 percent slopes	1,550	*
139F	Whitecow-Warneke gravelly loams, 25 to 60 percent slopes	2,952	*
140F	Whitecow complex, 25 to 60 percent slopes	2,849	*
151F	Warneke-Whitecow-Rock outcrop complex, 25 to 70 percent slopes	3,840	0.1
160D	Whitecow gravelly loam, 8 to 15 percent slopes	550	*
160E	Whitecow gravelly loam, 15 to 35 percent slopes	482	*
170A	Dimmick clay, 0 to 1 percent slopes	7,088	0.2
180B	Binna-Saypo complex, 0 to 4 percent slopes	387	*
190B	Nesda complex, 0 to 4 percent slopes	674	*
200F	Mined land	1,318	*
201D	Cabba-Windham complex, 8 to 25 percent slopes	1,837	*
211B	Thoeny-Absher complex, 0 to 4 percent slopes	48,005	1.5
212B	Thoeny-Elloam complex, 0 to 4 percent slopes	30,148	0.9
220E	Hillon-Joplin cobbly loams, 8 to 35 percent slopes	35,137	1.1
221D	Hillon-Kevin complex, 8 to 15 percent slopes	33,698	1.0
221E	Hillon-Kevin complex, 15 to 25 percent slopes	19,050	0.6
224D	Hillon-Joplin gravelly loams, 8 to 15 percent slopes	9,395	0.3
241B	Benz-Vanda complex, 0 to 4 percent slopes	2,696	*

* See footnote at end of table.

Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
250E	Bascovy-Neldore-Weingart clays, 8 to 25 percent slopes	33,528	1.0
251C	Bascovy-Neldore clays, 2 to 8 percent slopes	10,340	0.3
270E	Beaverell-Tinsley complex, 15 to 45 percent slopes	2,648	*
271D	Beaverell-Evanston complex, 8 to 15 percent slopes	741	*
301C	Marvan complex, 2 to 8 percent slopes	9,106	0.3
302B	Marvan-Vanda clays, 0 to 8 percent slopes	65,913	2.1
311B	Ferd-Gerdrum complex, 0 to 4 percent slopes	14,510	0.5
312B	Ferd-Absher complex, 0 to 4 percent slopes	5,366	0.2
320A	Kobase silty clay, 0 to 2 percent slopes	1,450	*
322C	Kobase-Megonot silty clay loams, 2 to 8 percent slopes	1,882	*
323B	Kobase-Marvan-Weingart complex, 0 to 4 percent slopes	904	*
331B	Phillips-Absher complex, 0 to 4 percent slopes	89,437	2.8
331C	Phillips-Absher complex, 4 to 8 percent slopes	13,735	0.4
332B	Phillips-Elloam complex, 0 to 4 percent slopes	87,157	2.7
333C	Phillips-Kevin, gravelly complex, 2 to 8 percent slopes	11,270	0.4
334C	Phillips-Kevin complex, 2 to 8 percent slopes	21,000	0.7
351C	Fortbenton fine sandy loam, 2 to 8 percent slopes	1,189	*
373C	Evanston-Chinook complex, 2 to 8 percent slopes	2,419	*
381B	Ethridge-Gerdrum clay loams, 0 to 4 percent slopes	14,729	0.5
383C	Ethridge-Beaverell complex, 2 to 8 percent slopes	3,423	0.1
391B	Creed-Absher complex, 0 to 4 percent slopes	9,460	0.3
392B	Creed-Gerdrum complex, 0 to 4 percent slopes	7,174	0.2
402B	Gerdrum-Absher complex, 0 to 4 percent slopes	20,744	0.6
421C	Joplin-Hillon loams, 2 to 8 percent slopes	24,200	0.8
424D	Joplin-Telstad loams, 8 to 15 percent slopes	2,538	*
426C	Joplin-Hillon gravelly loams, 2 to 8 percent slopes	7,783	0.2
442C	Kevin-Hillon complex, 2 to 8 percent slopes	6,633	0.2
444C	Kevin-Sunburst clay loams, 2 to 8 percent slopes	26,554	0.8
446D	Kevin-Sunburst very gravelly clay loams, 8 to 15 percent slopes	5,548	0.2
481A	Bigsag clay, 0 to 2 percent slopes	3,136	*
502C	Telstad-Elloam complex, 2 to 8 percent slopes	99,018	3.1
503C	Telstad-Joplin loams, 2 to 8 percent slopes	61,096	1.9
504C	Telstad-Absher complex, 2 to 8 percent slopes	6,389	0.2
505C	Telstad-Hillon loams, 2 to 8 percent slopes	898	*
511B	Martinsdale-Judith loams, 0 to 4 percent slopes	5,137	0.2
521B	Elloam-Absher complex, 0 to 4 percent slopes	82,915	2.6
561B	Scobey-Phillips complex, 0 to 4 percent slopes	86,567	2.7
562C	Scobey-Elloam clay loams, 2 to 8 percent slopes	48,677	1.5
563C	Scobey-Kevin clay loams, 2 to 8 percent slopes	146,706	4.6
564C	Scobey-Kevin-Elloam clay loams, 2 to 8 percent slopes	69,777	2.2
566C	Scobey-Kevin complex, 2 to 8 percent slopes	37,169	1.2
567C	Scobey-Elloam-Absher gravelly clay loams, 2 to 8 percent slopes	12,232	0.4
600	Pits, gravel	534	*
601A	Havre-Harlake-Glendive complex, 0 to 2 percent slopes	17,111	0.5
603A	Havre clay, 0 to 2 percent slopes	9,898	0.3
604A	Bullhook loam, 0 to 2 percent slopes	2,883	*
610	Pits, bentonite	112	*
650C	Yetull loamy fine sand, 2 to 8 percent slopes	290	*
650D	Yetull loamy fine sand, 8 to 15 percent slopes	66	*
731C	Judith-Windham complex, 2 to 8 percent slopes	3,992	0.1
791E	Yamacall complex, 8 to 35 percent slopes	2,434	*
792C	Yamacall complex, 2 to 8 percent slopes	5,360	0.2
811A	Glendive-Havre loams, 0 to 2 percent slopes	9,422	0.3
821D	Savage-Farnuf complex, 8 to 15 percent slopes	261	*
860C	Weingart complex, 2 to 8 percent slopes	6,619	0.2
871B	Tamaneen-Danvers clay loams, 0 to 4 percent slopes	6,019	0.2
901A	Lallie clay loam, 0 to 1 percent slopes	3,846	0.1
902A	Lostriver-Bullhook complex, 0 to 2 percent slopes	12,323	0.4
903A	Harlake-Lostriver clays, 0 to 2 percent slopes	32,528	1.0
905A	Harlake-Havre clay loams, 0 to 2 percent slopes	6,020	0.2
921D	Sunburst-Kevin gravelly clay loams, 8 to 15 percent slopes	29,198	0.9
923C	Sunburst-Kevin gravelly clay loams, 2 to 8 percent slopes	4,820	0.2

* See footnote at end of table.

Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
923F	Sunburst-Kevin complex, 15 to 45 percent slopes	29,567	0.9
924E	Sunburst-Bascovy-Neldore complex, 8 to 35 percent slopes	42,954	1.3
925C	Sunburst-Bascovy-Weingart complex, 2 to 8 percent slopes	15,532	0.5
926F	Sunburst-Neldore-Rock outcrop complex, 15 to 45 percent slopes	8,746	0.3
930A	Wheatbelt clay, 0 to 1 percent slopes	2,909	*
971F	Neldore-Cabbart-Tinsley complex, 25 to 65 percent slopes	17,856	0.6
973E	Neldore, cool-Bascovy clays, 8 to 35 percent slopes	12,224	0.4
974F	Pinebreaks-Neldore clays, 15 to 60 percent slopes	2,876	*
1021E	Cabbart-Twilight-Yawdim association, 8 to 35 percent slopes	22,834	0.7
1022F	Hillon-Cabbart-Rock outcrop association, 15 to 65 percent slopes	54,952	1.7
1030D	Marvan-Gerdrum association, 2 to 15 percent slopes	17,847	0.6
1037D	Evanston-Yamacall association, 0 to 15 percent slopes	6,607	0.2
1052B	Elloam-Thoeny association, 0 to 6 percent slopes	20,980	0.7
1059E	Weingart-Vaeda-Bascovy association, 4 to 25 percent slopes	9,055	0.3
1066D	Twilight-Cabbart-Marmarth association, 4 to 15 percent slopes	6,563	0.2
1090B	Harlake-Marvan association, 0 to 4 percent slopes	27,317	0.9
1221F	Hillon-Kevin association, 15 to 45 percent slopes	86,012	2.7
1251E	Neldore-Bascovy association, 8 to 35 percent slopes	117,060	3.6
1261B	Absher-Nobe clays, 0 to 4 percent slopes	1,269	*
1262A	Toston-Nobe complex, 0 to 2 percent slopes	2,664	*
1332C	Phillips-Elloam-Thoeny association, 0 to 8 percent slopes	55,281	1.7
1333C	Kevin-Phillips-Elloam association, 2 to 15 percent slopes	12,719	0.4
1373C	Evanston-Chinook-Marmarth association, 0 to 8 percent slopes	2,146	*
1392B	Creed-Gerdrum-Absher association, 0 to 4 percent slopes	6,297	0.2
1400F	Rock outcrop-Arsite association, 8 to 60 percent slopes	16,835	0.5
1441D	Kevin-Scobey-Phillips association, 2 to 15 percent slopes	132,313	4.1
1443E	Kevin-Scobey-Nishon association, 0 to 25 percent slopes	32,569	1.0
1503D	Telstad-Joplin association, 0 to 15 percent slopes	9,391	0.3
1523C	Elloam-Phillips-Absher association, 0 to 8 percent slopes	74,371	2.3
1850F	Cabbart-Twilight-Delpoint association, 25 to 70 percent slopes	5,365	0.2
1920F	Sunburst-Neldore association, 15 to 45 percent slopes	66,650	2.1
1970F	Neldore-Bascovy-Rock outcrop association, 8 to 60 percent slopes	128,865	4.0
1971F	Yawdim-Cabbart-Rock outcrop association, 25 to 70 percent slopes	55,771	1.7
1972F	Volborg-Rock outcrop association, 8 to 45 percent slopes	28,956	0.9
1973F	Neldore, cool-Neldore-Rock outcrop association, 15 to 60 percent slopes	41,377	1.3
1976F	Neldore-Pinebreaks-Bascovy association, 15 to 60 percent slopes	9,602	0.3
1977F	Volborg-Pinebreaks-Rock outcrop association, 15 to 60 percent slopes	35,509	1.1
2972F	Volborg-Neldore-Rock outcrop association, 15 to 60 percent slopes	31,281	1.0
W	Water	47,700	1.5
	Total	3,212,200	100.0

* Less than 0.1 percent.

Agronomy

General management needed for crops and for hay and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained, and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider obtaining specific information from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Cropland Limitations and Hazards

The management concerns affecting the use of the detailed soil map units in the survey area for crops are shown in the table "Main Cropland Limitations and Hazards." The main concerns in managing nonirrigated cropland are conserving moisture, controlling soil blowing and water erosion, and maintaining soil fertility.

Conserving moisture consists primarily of reducing the evaporation and runoff rates and increasing the water infiltration rate. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Generally, a combination of several practices is needed to control *soil blowing* and *water erosion.* Conservation tillage, stripcropping, field windbreaks, tall grass barriers, contour farming, conservation cropping systems, crop residue management, diversions, and grassed waterways help to prevent excessive soil loss.

Measures that are effective in maintaining *soil fertility* include applying fertilizer, both organic and inorganic, including manure; incorporating crop residue or green manure crops into the soil; and using proper crop rotations. Controlling erosion helps to prevent the loss of organic matter and plant nutrients and thus helps to maintain productivity, although the level of fertility can be reduced even in areas where erosion is controlled. All soils used for nonirrigated crops respond well to applications of fertilizer.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are *channels, flooding, depth to rock, ponding, gullies,* and *lack of timely precipitation.*

Additional limitations and hazards are as follows:

Areas of rock outcrop and slickspots.—Farming around these areas may be feasible. Subsoiling or deep ripping soft sedimentary beds increases the effective rooting depth and the rate of water infiltration.

Excessive permeability.—This limitation causes deep leaching of nutrients and pesticides. The capacity of the soil to retain moisture for plant use is poor.

Lime content, limited available water capacity, poor tilth, restricted permeability, and *surface crusting.*—These limitations can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems. Also, crops may respond well to additions of phosphate fertilizer to soils that have a high content of lime.

Potential for ground-water pollution.—This is a hazard in soils with excessive permeability, hard bedrock, or a water table within the profile.

Short frost-free period.—If the growing season is less than 90 days, short-season crops or grasses should be grown.

Surface rock fragments.—This limitation causes rapid wear of tillage equipment. It cannot be easily overcome.

Slope.—Where the slope is more than 8 percent, water erosion and soil blowing may be accelerated unless conservation farming practices are applied.

Surface stones.—Stones or boulders on the surface can hinder normal tillage unless they are removed.

Salt and sodium content.—In areas where this is a limitation, only salt- and sodium-tolerant crops should be grown.

On irrigated soils the main management concerns are *efficient water use, nutrient management, control*

of erosion, pest and weed control, and *timely planting and harvesting* for a successful crop. An irrigation system that provides optimum control and distribution of water at minimum cost is needed. Overirrigation wastes water, leaches plant nutrients, and causes erosion. Also, it can create drainage problems, raise the water table, and increase soil salinity.

Following is an explanation of the criteria used to determine the limitations or hazards.

Areas of rock outcrop.—Rock outcrop is a named component of the map unit.

Areas of rubble land.—Rubble land is a named component of the map unit.

Areas of slickspots.—Slickspots are a named component of the map unit.

Channeled.—The word "channeled" is included in the name of the map unit.

Depth to rock.—Bedrock is within a depth of 40 inches.

Excessive permeability.—The upper limit of the permeability range is 6 inches or more within the soil profile.

Flooding.—The component of the map unit is occasionally flooded or frequently flooded.

Gullied.—The word "gullied" is included in the name of the map unit.

Lack of timely precipitation.—The component of the map unit has a Xeric moisture regime. The amount of annual precipitation is no more than 14 inches.

Lime content.—The component is assigned to wind erodibility group 4L or has more than 5 percent lime in the upper 10 inches.

Limited available water capacity.—The available water capacity calculated to a depth of 60 inches or to a root-limiting layer is 5 inches or less.

Ponding.—Ponding duration is assigned to the component of the map unit.

Potential for ground-water pollution.—The soil has a water table within a depth of 4 feet or hard bedrock within the profile, or permeability is more than 6 inches per hour within the soil.

Poor tilth.—The component of the map unit has more than 35 percent clay in the surface layer.

Restricted permeability.—Permeability is 0.06 inch per hour or less within the soil profile.

Salt content.—The component of the map unit has an electrical conductivity of more than 4 in the surface layer or more than 8 within a depth of 30 inches.

Short frost-free period.—The map unit has a growing season of less than 90 frost-free days.

Slope.—The upper slope range of the component of the map unit is more than 8 percent.

Sodium content.—The sodium adsorption ratio of the component of the map unit is more than 13 within a depth of 30 inches.

Soil blowing.—The wind erodibility index multiplied by the selected high C factor for the survey area and then divided by the T factor is more than 8 for the component of the map unit.

Surface rock fragments.—The terms describing the texture of the surface layer include any rock fragment modifier except for gravelly or channery, and "surface stones" is not already indicated as a limitation.

Surface crusting.—The sodium adsorption ratio in the surface layer is 5 or more for any texture and 4 or more if the texture is silt, silt loam, loam, or very fine sandy loam.

Surface stones.—The terms describing the texture of the surface layer include any stony or bouldery modifier, or the soil is a stony or bouldery phase.

Water erosion.—The surface K factor multiplied by the upper slope limit is more than 2 (same as prime farmland criteria).

Water table.—The component of the map unit has a water table within a depth of 60 inches.

Crop Yield Estimates

The average yields per acre that can be expected of the principal crops under a high level of management are shown in the table "Land Capability and Yields per Acre of Crops and Pasture." In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard

manure, and green manure crops; and harvesting that ensures the smallest possible loss. Yields for dryland crops are based on a crop-fallow system.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Pasture and Hayland Interpretations

Under good management, proper grazing is essential for the production of high-quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Yield estimates are often indicated in animal unit months (AUM), or the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about forage yields other than those shown in the table "Land Capability and Yields per Acre of Crops and Pasture."

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system, as described in "Land Capability Classification" (USDA, 1961), soils generally are grouped at three levels—capability class, subclass, and unit. These levels indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, small grain, hay, and field-grown vegetables. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use.

If properly managed, soils in classes 1, 2, 3, and 4 are suitable for the mechanized production of commonly grown field crops and for pasture and woodland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class 1 to class 5. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes 5, 6, and 7 are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class 5 to class 7. The local office of the Cooperative Extension Service or the Natural Resources Conservation Service can provide guidance on the use of these soils as cropland.

Areas in class 8 are generally not suitable for crops, pasture, or woodland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

Capability subclasses indicate the dominant limitations in the class. They are designated by adding a letter, *E, W, S,* or *C,* to the class numeral, for example, 2E. The letter *E* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *W* shows that water in or on the

soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *S* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *C,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class 1 because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *W, S,* or *C* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use mainly to pasture, rangeland, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the table "Land Capability and Yields per Acre of Crops and Pasture" at the end of this section.

Prime Farmland and Other Important Farmland

In this section, prime farmland and other important farmland are defined. The soils in the survey area that are considered prime farmland are listed in the table "Prime Farmland" at the end of this section.

Prime Farmland

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They either are used for food and fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity and the content of salts and sodium are acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland where these limitations are overcome by drainage measures, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

The map units in the survey area that meet the requirements for prime farmland are listed in the table "Prime Farmland." On some soils included in the table, measures that overcome limitations are needed. The need for these measures is indicated in parentheses after the map unit name. The location of each map unit is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described in the section "Soil Series and Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Unique Farmland

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil qualities, location, growing season, and moisture supply needed for the economic production of

sustained high yields of a specific high-quality crop when treated and managed by acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, and vegetables.

Unique farmland is used for a specific high-value food or fiber crop; has an adequate supply of available moisture for the specific crop because of stored moisture, precipitation, or irrigation; and has a combination of soil qualities, growing season, temperature, humidity, air drainage, elevation, aspect, and other factors, such as nearness to markets, that favors the production of a specific food or fiber crop.

Lists of unique farmland are developed as needed in cooperation with conservation districts and others.

Additional Farmland of Statewide Importance

Some areas other than areas of prime and unique farmland are of statewide importance in the production of food, feed, fiber, forage, and oilseed crops. The criteria used in defining and delineating these areas are determined by the appropriate State agency or agencies. Generally, additional farmland of statewide importance includes areas that nearly meet the criteria for prime farmland and that economically produce high yields of crops when treated and managed by acceptable farming methods. Some areas can produce as high a yield as areas of prime farmland if conditions are favorable. In some states additional farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

A list of this land has not been maintained for Montana and thus is not presently available.

Additional Farmland of Local Importance

This land consists of areas that are of local importance in the production of food, feed, fiber, forage, and oilseed crops and are not identified as having national or statewide importance. Where appropriate, this land is identified by local agencies. It may include tracts of land that have been designated for agriculture by local ordinance.

Lists of this land are developed as needed in cooperation with conservation districts and others.

Erosion Factors

Soil erodibility (K) and soil-loss tolerance (T) factors are used in an equation that predicts the amount of soil lost through water erosion in areas of cropland. The procedure for predicting soil loss is useful in guiding the selection of soil and water conservation practices.

Soil Erodibility (K) Factor

The soil erodibility factor (K) indicates the susceptibility of a soil to sheet and rill water erosion. The soil properties that influence erodibility are those that affect the infiltration rate, the movement of water through the soil, and the water storage capacity of the soil and those that allow the soil to resist dispersion, splashing, abrasion, and the transporting forces of rainfall and runoff. The most important soil properties are the content of silt plus very fine sand, the content of sand coarser than very fine sand, the content of organic matter, soil structure, and permeability.

Fragment-Free Soil Erodibility (Kf) Factor

This is one of the factors used in the revised Universal Soil Loss Equation. It shows the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Soil-Loss Tolerance (T) Factor

The soil-loss tolerance factor (T) is an estimate of the maximum annual rate of soil erosion that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons of soil loss per acre per year. Ratings of 1 to 5 are used, depending on soil properties and prior erosion. The criteria used in assigning a T factor to a soil include maintenance of an adequate rooting depth for crop production, potential reduction of crop yields, maintenance of water-control structures affected by sedimentation, prevention of gullying, and the value of nutrients lost through erosion.

Wind Erodibility Groups

Wind erodibility is directly related to the percentage of dry, nonerodible surface soil aggregates larger than 0.84 millimeter in diameter. From this percentage, the wind erodibility index factor (I) is determined. This factor is an expression of the stability of the soil aggregates, or the extent to which they are broken down by tillage and the abrasion caused by windblown soil particles. Soils are assigned to wind erodibility groups (WEG) having similar percentages of dry soil aggregates larger than 0.84 millimeter.

Additional information about wind erodibility groups and K, Kf, T, and I factors can be obtained from local offices of the Natural Resources Conservation Service or the Cooperative Extension Service.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not originally support trees. Knowledge of how trees perform on such land can be gained only by observing and recording the performance of trees that have been planted and have survived. Many popular windbreak species are not indigenous to the areas in which they are planted.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters, a tree or shrub may grow well or grow poorly, depending on the characteristics of the soil. Each tree or shrub has definable potential heights in a given physiographic area and under a given climate. Accurate definitions of potential heights are necessary when a windbreak is planned and designed.

The "Windbreak Suitability Group Species" table shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in this table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Natural Resources Conservation Service or the Cooperative Extension Service or from a nursery.

Windbreak Suitability Groups

Windbreak suitability groups consist of soils in which the kinds and degrees of the hazards and limitations that affect the survival and growth of trees and shrubs in windbreaks are about the same. The table "Windbreak Suitability Groups" shows the windbreak suitability group for each component of each map unit in the county.

Group 1 consists of soils that have no soil-related hazards or limitations or only slight hazards or limitations if they are used for windbreaks. Slopes are less than 15 percent.

Group 2M consists of soils that have a moderate available water capacity (5 to 10 inches) because of texture, depth, or both. The soils are well drained and are not affected by salinity. A layer of concentrated lime, if it occurs, is below a depth of 24 inches. Slopes are less than 15 percent.

Group 2L consists of soils that have a layer of concentrated lime (more than 15 percent calcium carbonate equivalent) at a depth of about 15 to 24 inches. The available water capacity is at least 5 inches. The soils are well drained and are not affected by salinity or alkalinity (the electrical conductivity is less than 4 millimhos per centimeter). Slopes are less than 15 percent.

Group 2W consists of soils that have an available water capacity of 5 inches or more. If the soils have a layer of concentrated lime, the layer is below a depth of 15 inches. The depth to a permanent water table is 30 to 60 inches. The soils are not affected by salinity. Slopes are less than 15 percent.

Group 2S consists of soils that are moderately affected by salinity (the electrical conductivity is 4 to 12 millimhos per centimeter). The available water capacity is at least 5 inches. A layer of concentrated lime, if it occurs, is at a depth of 15 inches or more. The water table is at a depth of 30 inches or more. Slopes are less than 15 percent.

Group 3M consists of soils that have an available water capacity of 2 to 5 inches because of texture, depth, or both. A layer of concentrated lime, if it occurs, is at a depth of 15 inches or more. The soils are well drained and are not affected by salinity (the electrical conductivity is less than 4 millimhos per centimeter).

Group 3L consists of soils that have a layer of concentrated lime (more than 15 percent calcium

carbonate equivalent) at a depth of less than 15 inches. A permanent water table is at a depth of more than 30 inches. The available water capacity is more than 5 inches. The soils are not affected by salinity (the electrical conductivity is less than 4 millimhos per centimeter). Slopes are less than 15 percent.

Group 3W consists of soils that have an available water capacity of 2 inches or more. If the soils have a layer of concentrated lime, the layer is below a depth of 15 inches. The depth to a permanent water table is 30 inches or less. It is more than 10 inches during all or most of the growing season. The soils are not affected by salinity. Slopes are less than 15 percent.

Group 3S consists of soils that are severely affected by salinity or alkalinity (the electrical conductivity is 12 to 16 millimhos per centimeter). The available water capacity is 5 inches or more. A layer of concentrated lime, if it occurs, is at a depth of more than 15 inches. A permanent water table is at a depth of 30 inches or more. Slopes are less than 15 percent.

Group 4 consists of soils that have slopes of more than 15 percent, except for those in areas where the length of the slopes is 100 feet or less, and the less sloping soils that have very severe limitations, including soils that have a very low available water capacity (2 inches or less); very shallow, stony, or gravelly soils; strongly saline and alkali soils, in which the electrical conductivity is more than 16 millimhos per centimeter; and soils that have a pH of more than 9.0. Rock outcrop also is in this group.

Main Cropland Limitations and Hazards

(See text for a description of the limitations and hazards listed in this table.)

Soil name and map symbol	Cropland limitations or hazards
10C:	
Barkof	Depth to rock Lime content Limited available water capacity Poor tilth Restricted permeability Soil blowing Water erosion
11B:	
Degrand	Excessive permeability Limited available water capacity Potential for ground-water pollution Soil blowing
13B:	
Beaverton	Excessive permeability Limited available water capacity Potential for ground-water pollution Soil blowing
25C:	
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Sodium content Soil blowing Surface crusting Water erosion
28A:	
Nishon	Ponding Potential for ground-water pollution Soil blowing Water table
29A:	
McKenzie	Lime content Ponding Poor tilth Potential for ground-water pollution Restricted permeability Salt content Soil blowing Water table
30A:	
Marvan	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
31B:	
Ferd	Soil blowing

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
32B:	
Kobase	Lime content Poor tilth Soil blowing Surface crusting
33B:	
Phillips	Soil blowing
35C:	
Assinniboine	Soil blowing
36C:	
Chinook	Soil blowing
37B:	
Evanston	Soil blowing
37C:	
Evanston	Soil blowing Water erosion
38B:	
Ethridge	Soil blowing
38C:	
Ethridge	Soil blowing Water erosion
41A:	
Vaeda	Poor tilth Restricted permeability Salt content Sodium content Soil blowing
43A:	
Pendroy	Poor tilth Restricted permeability Soil blowing
48A:	
Vanda	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
49A:	
Lardell	Lime content Limited available water capacity Poor tilth Potential for ground-water pollution Salt content Sodium content Soil blowing Surface crusting Water table

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
50B:	
Telstad	Soil blowing
52B:	
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting
56B:	
Scobey	Soil blowing
59B:	
Weingart	Depth to rock Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
60A:	
Havre	Lime content Soil blowing
75C:	
Farnuf	Soil blowing Water erosion
79C:	
Yamacall	Soil blowing Water erosion
81A:	
Glendive	Lime content Soil blowing
82B:	
Savage	None
82C:	
Savage	Water erosion
84F:	
Macmeal, warm	Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
Macmeal	Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
90A:	
Harlake	Lime content Poor tilth Soil blowing

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
93A:	
Bowdoin	Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
94C:	
Busby	Excessive permeability Potential for ground-water pollution Soil blowing
94D:	
Busby	Excessive permeability Potential for ground-water pollution Slope Soil blowing Water erosion
96D:	
Megonot	Depth to rock Lime content Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Kobase	Lime content Poor tilth Slope Soil blowing Surface crusting Water erosion
97D:	
Neldore	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Slope Sodium content Soil blowing Surface crusting Water erosion
100A:	
Hanly	Excessive permeability Lime content Potential for ground-water pollution Soil blowing

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
101E:	
Barkof	Depth to rock Lime content Limited available water capacity Poor tilth Restricted permeability Slope Soil blowing Water erosion
Windham	Lime content Limited available water capacity Slope Soil blowing Water erosion
110C:	
Attewan	Excessive permeability Potential for ground-water pollution Soil blowing Water erosion
Beaverell	Excessive permeability Limited available water capacity Potential for ground-water pollution Soil blowing
115F:	
Silverchief	Short frost-free period Slope Soil blowing Water erosion
Whitecow, warm	Lime content Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
Macmeal	Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
120F:	
Mocmont, cool	Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
Mocmont	Limited available water capacity Short frost-free period Slope Soil blowing Surface rock fragments Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
121F:	
Mocmont	Limited available water capacity Short frost-free period Slope Soil blowing Surface rock fragments Water erosion
Mocmont, cool	Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
Tolex	Depth to rock Limited available water capacity Potential for ground-water pollution Short frost-free period Slope Soil blowing Water erosion
122F:	
Mocmont, cool	Limited available water capacity Short frost-free period Slope Soil blowing Surface rock fragments Water erosion
Landusky	Excessive permeability Limited available water capacity Potential for ground-water pollution Short frost-free period Slope Surface rock fragments
130F:	
Rubble land	Nonsoil material
Mocmont, cool	Areas of rock outcrop Areas of rubble land Limited available water capacity Short frost-free period Slope Soil blowing Surface rock fragments Water erosion
Rock outcrop	Nonsoil material
139F:	
Whitecow, warm	Lime content Limited available water capacity Short frost-free period Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
139F:(cont.)	
Warneke	Depth to rock Lime content Limited available water capacity Potential for ground-water pollution Short frost-free period Slope Soil blowing Water erosion
140F:	
Whitecow	Lime content Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
Whitecow, warm	Lime content Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
151F:	
Warneke	Areas of rock outcrop Depth to rock Lime content Limited available water capacity Potential for ground-water pollution Short frost-free period Slope Soil blowing Water erosion
Whitecow, warm	Areas of rock outcrop Lime content Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
Rock outcrop	Nonsoil material
160D:	
Whitecow, warm	Lime content Limited available water capacity Short frost-free period Slope Soil blowing Water erosion
160E:	
Whitecow, warm	Lime content Limited available water capacity Short frost-free period Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
170A:	
Dimmick	Ponding Poor tilth Potential for ground-water pollution Restricted permeability Water table
180B:	
Binna	Lime content Limited available water capacity Soil blowing
Saypo	Lime content Potential for ground-water pollution Soil blowing Water table
190B:	
Nesda	Excessive permeability Limited available water capacity Potential for ground-water pollution Soil blowing
Nesda, cool	Excessive permeability Flooding Limited available water capacity Potential for ground-water pollution Soil blowing Surface rock fragments
200F:	
Mined land	Nonsoil material
201D:	
Cabba	Depth to rock Lime content Limited available water capacity Slope Soil blowing Water erosion
Windham	Lime content Limited available water capacity Slope Soil blowing Water erosion
211B:	
Thoeny	Restricted permeability Salt content Sodium content Soil blowing
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
212B:	
Thoeny	Restricted permeability Salt content Sodium content Soil blowing
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting
220E:	
Hillon	Lime content Slope Soil blowing Surface rock fragments Water erosion
Joplin	Lime content Slope Soil blowing Surface rock fragments Water erosion
221D:	
Hillon	Lime content Slope Soil blowing Water erosion
Kevin	Lime content Slope Soil blowing Water erosion
221E:	
Hillon	Lime content Slope Soil blowing Water erosion
Kevin	Lime content Slope Soil blowing Water erosion
224D:	
Hillon	Lime content Slope Soil blowing Water erosion
Joplin	Lime content Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
241B:	
Benz	Lime content Salt content Sodium content Soil blowing Surface crusting
Vanda	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
250E:	
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Slope Sodium content Soil blowing Surface crusting Water erosion
Neldore	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Weingart, thin	Depth to rock Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Slope Sodium content Soil blowing Surface crusting Water erosion
251C:	
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Sodium content Soil blowing Surface crusting Water erosion
Neldore	Depth to rock Limited available water capacity Poor tilth Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
270E:	
Beaverell	Excessive permeability Limited available water capacity Potential for ground-water pollution Slope Soil blowing Water erosion
Tinsley	Excessive permeability Lime content Limited available water capacity Potential for ground-water pollution Slope Soil blowing Water erosion
271D:	
Beaverell	Excessive permeability Limited available water capacity Potential for ground-water pollution Slope Soil blowing Water erosion
Evanston	Slope Soil blowing Water erosion
301C:	
Marvan, saline	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
Marvan	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
302B:	
Marvan, saline	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
302B:(cont.)	
Vanda	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
311B:	
Ferd	Soil blowing
Gerdrum	Poor tilth Restricted permeability Salt content Sodium content Soil blowing
312B:	
Ferd	Soil blowing
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
320A:	
Kobase	Lime content Poor tilth Soil blowing Water table
322C:	
Kobase	Lime content Poor tilth Soil blowing Surface crusting Water erosion
Megonot	Depth to rock Limited available water capacity Poor tilth Soil blowing Water erosion
323B:	
Kobase	Lime content Poor tilth Soil blowing Surface crusting
Marvan	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
323B:(cont.)	
Weingart, thin	Depth to rock Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
331B:	
Phillips	Soil blowing
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
331C:	
Phillips	Soil blowing Water erosion
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
332B:	
Phillips	Soil blowing
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting
333C:	
Phillips	Soil blowing Water erosion
Kevin	Lime content Soil blowing Surface rock fragments
334C:	
Phillips	Soil blowing Water erosion
Kevin	Lime content Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
351C:	
Fortbenton	Soil blowing Water erosion
373C:	
Evanston	Soil blowing Water erosion
Chinook	Soil blowing
381B:	
Ethridge	Soil blowing
Gerdrum	Poor tilth Restricted permeability Salt content Sodium content Soil blowing
383C:	
Ethridge	Soil blowing Water erosion
Beaverell	Excessive permeability Limited available water capacity Potential for ground-water pollution Soil blowing
391B:	
Creed	Salt content Sodium content Soil blowing
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
392B:	
Creed	Salt content Sodium content Soil blowing
Gerdrum	Poor tilth Restricted permeability Salt content Sodium content Soil blowing
402B:	
Gerdrum	Poor tilth Restricted permeability Salt content Sodium content Soil blowing

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
402B:(cont.)	
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
421C:	
Joplin	Lime content Soil blowing Water erosion
Hillon	Lime content Soil blowing Water erosion
424D:	
Joplin	Lime content Slope Soil blowing Water erosion
Telstad	Slope Soil blowing Water erosion
426C:	
Joplin	Lime content Soil blowing
Hillon	Lime content Soil blowing
442C:	
Kevin	Lime content Soil blowing Water erosion
Hillon	Lime content Soil blowing Water erosion
444C:	
Kevin	Lime content Soil blowing Water erosion
Sunburst	Lime content Poor tilth Soil blowing Water erosion
446D:	
Kevin	Lime content Slope Soil blowing Surface rock fragments Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
446D:(cont.)	
Sunburst	Lime content Poor tilth Slope Soil blowing Surface rock fragments Water erosion
481A:	
Bigsag	Lime content Poor tilth Potential for ground-water pollution Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water table
502C:	
Telstad	Soil blowing Water erosion
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
503C:	
Telstad	Soil blowing Water erosion
Joplin	Lime content Soil blowing Water erosion
504C:	
Telstad	Soil blowing Water erosion
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
505C:	
Telstad	Soil blowing Water erosion
Hillon	Lime content Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
511B:	
Martinsdale	Soil blowing
Judith	Lime content Soil blowing
521B:	
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
561B:	
Scobey	Soil blowing
Phillips	Soil blowing
562C:	
Scobey	Soil blowing Water erosion
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
563C:	
Scobey	Soil blowing Water erosion
Kevin	Lime content Soil blowing Water erosion
564C:	
Scobey	Soil blowing Water erosion
Kevin	Lime content Soil blowing Water erosion
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
566C:	
Scobey	Soil blowing
Kevin	Lime content Soil blowing Surface rock fragments
567C:	
Scobey	Soil blowing
Elloam	Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
600:	
Pits, gravel	Nonsoil material
601A:	
Havre	Lime content Soil blowing
Harlake	Lime content Poor tilth Soil blowing
Glendive	Lime content Soil blowing
603A:	
Havre	Poor tilth Soil blowing
604A:	
Bullhook	Lime content Salt content Sodium content Soil blowing Surface crusting
610:	
Pits, bentonite	Nonsoil material
650C:	
Yetull	Excessive permeability Lime content Limited available water capacity Potential for ground-water pollution Soil blowing

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
650D:	
Yetull	Excessive permeability Lime content Limited available water capacity Potential for ground-water pollution Slope Soil blowing Water erosion
731C:	
Judith	Lime content Soil blowing Water erosion
Windham	Lime content Limited available water capacity Soil blowing
791E:	
Yamacall, calcareous	Lime content Slope Soil blowing Water erosion
Yamacall	Slope Soil blowing Water erosion
792C:	
Yamacall, calcareous	Lime content Soil blowing Water erosion
Yamacall	Soil blowing Water erosion
811A:	
Glendive	Lime content Soil blowing
Havre	Lime content Soil blowing
821D:	
Savage	Slope Water erosion
Farnuf	Slope Soil blowing Water erosion
860C:	
Weingart	Depth to rock Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
860C:(cont.)	
Weingart, thin	Depth to rock Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
871B:	
Tamaneen	Soil blowing
Danvers	Soil blowing
901A:	
Lallie	Ponding Poor tilth Potential for ground-water pollution Salt content Water table
902A:	
Lostriver	Poor tilth Salt content Sodium content Soil blowing Surface crusting
Bullhook	Lime content Salt content Sodium content Soil blowing Surface crusting
903A:	
Harlake	Lime content Poor tilth Soil blowing
Lostriver	Poor tilth Salt content Sodium content Soil blowing Surface crusting
905A:	
Harlake	Lime content Poor tilth Soil blowing Water table
Havre	Poor tilth Soil blowing Water table

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
921D:	
Sunburst	Lime content Poor tilth Slope Soil blowing Water erosion
Kevin	Lime content Slope Soil blowing Water erosion
923C:	
Sunburst	Lime content Poor tilth Soil blowing
Kevin	Lime content Soil blowing
923F:	
Sunburst	Lime content Poor tilth Slope Soil blowing Water erosion
Kevin	Lime content Slope Soil blowing Water erosion
924E:	
Sunburst	Lime content Poor tilth Slope Soil blowing Water erosion
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Slope Sodium content Soil blowing Surface crusting Water erosion
Neldore	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
925C:	
Sunburst	Lime content Poor tilth Soil blowing

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
925C:(cont.)	
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Sodium content Soil blowing Surface crusting Water erosion
Weingart, thin	Depth to rock Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
926F:	
Sunburst	Areas of rock outcrop Lime content Poor tilth Slope Soil blowing Water erosion
Neldore	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Rock outcrop	Nonsoil material
930A:	
Wheatbelt	Ponding Poor tilth Potential for ground-water pollution Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water table
971F:	
Neldore	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
971F:(cont.)	
Cabbart	Depth to rock Lime content Limited available water capacity Slope Soil blowing Water erosion
Tinsley	Excessive permeability Lime content Limited available water capacity Potential for ground-water pollution Slope Soil blowing Water erosion
973E:	
Neldore, cool	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Slope Sodium content Soil blowing Surface crusting Water erosion
974F:	
Pinebreaks	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Neldore	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
1021E:	
Cabbart	Depth to rock Lime content Limited available water capacity Slope Soil blowing Water erosion
Twilight	Depth to rock Limited available water capacity Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
1021E:(cont.)	
Yawdim	Depth to rock Lime content Limited available water capacity Poor tilth Restricted permeability Slope Soil blowing Water erosion
1022F:	
Hillon	Areas of rock outcrop Lime content Slope Soil blowing Water erosion
Cabbart	Areas of rock outcrop Depth to rock Lime content Limited available water capacity Slope Soil blowing Water erosion
Rock outcrop	Nonsoil material
1030D:	
Marvan	Lime content Poor tilth Restricted permeability Salt content Slope Sodium content Soil blowing Surface crusting Water erosion
Gerdrum	Poor tilth Restricted permeability Salt content Sodium content Soil blowing Water erosion
1037D:	
Evanston	Slope Soil blowing Water erosion
Yamacall	Slope Soil blowing Water erosion
1052B:	
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
1052B:(cont.)	
Thoeny	Restricted permeability Salt content Sodium content Soil blowing Water erosion
1059E:	
Weingart	Depth to rock Limited available water capacity Poor tilth Restricted permeability Salt content Slope Sodium content Soil blowing Surface crusting Water erosion
Vaeda	Poor tilth Restricted permeability Salt content Sodium content Soil blowing Water erosion
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Slope Sodium content Soil blowing Surface crusting Water erosion
1066D:	
Twilight	Depth to rock Limited available water capacity Slope Soil blowing Water erosion
Cabbart	Depth to rock Lime content Limited available water capacity Slope Soil blowing Water erosion
Marmarth	Depth to rock Slope Soil blowing Water erosion
1090B:	
Harlake	Lime content Poor tilth Soil blowing

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
1090B:(cont.)	
Marvan	Lime content Poor tilth Restricted permeability Salt content Sodium content Soil blowing
1221F:	
Hillon	Lime content Slope Soil blowing Water erosion
Kevin	Lime content Slope Soil blowing Water erosion
1251E:	
Neldore	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Slope Sodium content Soil blowing Surface crusting Water erosion
1261B:	
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
Nobe	Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
1262A:	
Toston	Lime content Potential for ground-water pollution Salt content Sodium content Soil blowing Surface crusting Water table

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
1262A:(cont.)	
Nobe	Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water table
1332C:	
Phillips	Soil blowing Water erosion
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
Thoeny	Restricted permeability Salt content Sodium content Soil blowing Water erosion
1333C:	
Kevin	Lime content Slope Soil blowing Water erosion
Phillips	Soil blowing Water erosion
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
1373C:	
Evanston	Soil blowing Water erosion
Chinook	Soil blowing
Marmarth	Depth to rock Soil blowing Water erosion
1392B:	
Creed	Salt content Sodium content Soil blowing
Gerdrum	Poor tilth Restricted permeability Salt content Sodium content Soil blowing

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
1392B:(cont.)	
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting
1400F:	
Rock outcrop	Nonsoil material
Arsite	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Restricted permeability Salt content Slope Soil blowing Surface crusting Water erosion
1441D:	
Kevin	Lime content Slope Soil blowing Water erosion
Scobey	Slope Soil blowing Water erosion
Phillips	Soil blowing Water erosion
1443E:	
Kevin	Lime content Slope Soil blowing Water erosion
Scobey	Slope Soil blowing Water erosion
Nishon	Ponding Potential for ground-water pollution Soil blowing Water table
1503D:	
Telstad	Slope Soil blowing Water erosion
Joplin	Lime content Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
1523C:	
Elloam	Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
Phillips	Soil blowing Water erosion
Absher	Lime content Limited available water capacity Poor tilth Restricted permeability Salt content Sodium content Soil blowing Surface crusting Water erosion
1850F:	
Cabbart	Depth to rock Lime content Limited available water capacity Slope Soil blowing Water erosion
Twilight	Depth to rock Limited available water capacity Slope Soil blowing Water erosion
Delpoint	Depth to rock Lime content Limited available water capacity Slope Soil blowing Water erosion
1920F:	
Sunburst	Lime content Poor tilth Slope Soil blowing Water erosion
Neldore	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
1970F:	
Neldore	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Bascovy	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Restricted permeability Slope Sodium content Soil blowing Surface crusting Water erosion
Rock outcrop	Nonsoil material
1971F:	
Yawdim	Areas of rock outcrop Depth to rock Lime content Limited available water capacity Poor tilth Restricted permeability Slope Soil blowing Water erosion
Cabbart	Areas of rock outcrop Depth to rock Lime content Limited available water capacity Slope Soil blowing Water erosion
Rock outcrop	Nonsoil material
1972F:	
Volborg	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Rock outcrop	Nonsoil material
1973F:	
Neldore, cool	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
1973F:(cont.)	
Neldore	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Rock outcrop	Nonsoil material
1976F:	
Neldore	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Pinebreaks	Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Bascovy	Depth to rock Limited available water capacity Poor tilth Restricted permeability Slope Sodium content Soil blowing Surface crusting Water erosion
1977F:	
Volborg	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Pinebreaks	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Rock outcrop	Nonsoil material
2972F:	
Volborg	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion

Main Cropland Limitations and Hazards--Continued

Soil name and map symbol	Cropland limitations or hazards
2972F:(cont.)	
Neldore	Areas of rock outcrop Depth to rock Limited available water capacity Poor tilth Slope Soil blowing Water erosion
Rock outcrop	Nonsoil material
W:	
Water	Nonsoil material

Land Capability and Yields Per Acre of Crops and Pasture

(Yields in the 'N' columns are for nonirrigated soils; those in the 'I' column are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component name. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
10C:														
Barkof	4E		36	---	39	---	60	---	1.8	---	2.0	---	1.8	---
11B:														
Degrand	3E		25	---	27	---	40	---	1.1	---	1.3	---	1.1	---
13B:														
Beaverton	6S		---	---	---	---	---	---	1.2	---	1.5	---	1.2	---
25C:														
Bascovy	4E		26	---	28	---	42	---	1.0	---	1.2	---	1.0	---
28A:														
Nishon	4W		19	---	22	---	30	---	---	---	---	---	2.5	---
29A:														
McKenzie	4W		18	---	20	---	28	---	---	---	---	---	1.9	---
30A:														
Marvan	4E		33	---	37	---	57	---	1.0	---	1.2	---	1.0	---
31B:														
Ferd	3E		36	---	41	---	63	---	1.2	---	1.5	---	1.2	---
32B:														
Kobase	4E		33	---	39	---	59	---	1.2	---	1.5	---	1.2	---
33B:														
Phillips	3E		37	---	41	---	64	---	1.2	---	1.5	---	1.2	---
35C:														
Assinniboine	4E		30	---	34	---	52	---	1.0	---	1.3	---	1.0	---
36C:														
Chinook	4E		31	---	35	---	54	---	0.8	---	1.0	---	0.7	---
37B:														
Evanston	3E		38	---	42	---	66	---	1.2	---	1.5	---	1.2	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
37C:														
Evanston	3E		38	---	42	---	66	---	1.0	---	1.3	---	1.0	---
38B:														
Ethridge	3E		37	---	42	---	65	---	1.2	---	1.5	---	1.2	---
38C:														
Ethridge	3E		37	---	42	---	65	---	1.0	---	1.3	---	1.0	---
41A:														
Vaeda	7S		---	---	---	---	---	---	---	---	---	---	---	---
43A:														
Pendroy	4E	4E	30	---	33	---	51	---	0.9	2.2	1.0	3.0	1.0	1.8
48A:														
Vanda	7S		---	---	---	---	---	---	---	---	---	---	---	---
49A:														
Lardell	7S		---	---	---	---	---	---	---	---	---	---	---	---
50B:														
Telstad	3E		38	---	43	---	67	---	1.2	---	1.5	---	1.2	---
52B:														
Elloam	6S		19	---	21	---	29	---	0.5	---	0.6	---	0.5	---
56B:														
Scobey	3E		37	---	42	---	65	---	1.2	---	1.5	---	1.2	---
59B:														
Weingart	6S		---	---	---	---	---	---	0.5	---	0.6	---	0.5	---
60A:														
Havre	3E	2E	37	---	41	---	64	---	1.5	4.5	1.7	6.0	1.5	4.0
75C:														
Farnuf	3E		47	---	52	---	84	---	2.0	---	2.2	---	2.2	---
79C:														
Yamacall	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
81A:														
Glendive	3E	2E	35	---	40	---	61	---	1.5	4.5	1.7	6.0	1.5	4.0

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
82B:														
Savage	3E		46	---	51	---	80	---	2.2	---	2.5	---	2.5	---
82C:														
Savage	3E		46	---	51	---	80	---	2.0	---	2.2	---	2.1	---
84F:														
Macmeal, warm	7E		---	---	---	---	---	---	---	---	---	---	---	---
Macmeal	7E		---	---	---	---	---	---	---	---	---	---	---	---
90A:														
Harlake	4S	4S	36	---	41	---	63	---	1.3	4.0	1.5	5.5	1.3	3.5
93A:														
Bowdoin	6S	6S	---	---	---	---	---	---	0.7	2.0	0.8	2.5	0.7	1.5
94C:														
Busby	4E		29	---	33	---	50	---	0.8	---	1.0	---	0.7	---
94D:														
Busby	4E		29	---	33	---	50	---	0.6	---	0.7	---	0.5	---
96D:														
Megonot	4E		16	---	18	---	23	---	0.6	---	0.8	---	0.5	---
Kobase	4E		29	---	32	---	48	---	0.8	---	1.0	---	0.7	---
97D:														
Neldore	6E		10	---	11	---	9	---	0.4	---	0.5	---	0.4	---
Bascovy	4E		21	---	22	---	31	---	0.6	---	0.8	---	0.5	---
100A:														
Hanly	4E	4E	24	---	26	---	37	---	1.0	3.5	1.2	5.0	1.0	3.1
101E:														
Barkof	6E		---	---	---	---	---	---	---	---	---	---	---	---
Windham	6E		---	---	---	---	---	---	---	---	---	---	---	---
110C:														
Attewan	3E		27	---	31	---	45	---	1.1	---	1.3	---	1.1	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
110C:(cont.)														
Beaverell-------	6S		14	---	16	---	19	---	0.5	---	0.6	---	0.5	---
115F:														
Silverchief-----	6E		---	---	---	---	---	---	---	---	---	---	---	---
Whitecow, warm--	7E		---	---	---	---	---	---	---	---	---	---	---	---
Macmeal---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
120F:														
Mocmont, cool---	7E		---	---	---	---	---	---	---	---	---	---	---	---
Mocmont---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
121F:														
Mocmont---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Mocmont, cool---	7E		---	---	---	---	---	---	---	---	---	---	---	---
Tolex-----------	7E		---	---	---	---	---	---	---	---	---	---	---	---
122F:														
Mocmont, cool---	7E		---	---	---	---	---	---	---	---	---	---	---	---
Landusky--------	7E		---	---	---	---	---	---	---	---	---	---	---	---
130F:														
Rubble land.														
Mocmont, cool---	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop.														
139F:														
Whitecow, warm--	7E		---	---	---	---	---	---	---	---	---	---	---	---
Warneke---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
140F:														
Whitecow--------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Whitecow, warm--	7E		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
151F:														
Warneke	7E		---	---	---	---	---	---	---	---	---	---	---	---
Whitecow, warm	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop.														
160D:														
Whitecow, warm	4E		---	---	---	---	---	---	---	---	---	---	---	---
160E:														
Whitecow, warm	6E		---	---	---	---	---	---	---	---	---	---	---	---
170A:														
Dimmick	5W		24	---	27	---	39	---	---	---	---	---	3.1	---
180B:														
Binna	4E		19	---	22	---	30	---	1.2	---	1.5	---	1.2	---
Saypo	4E		32	---	36	---	56	---	1.8	---	2.0	---	1.9	---
190B:														
Nesda	6S		28	---	31	---	45	---	1.5	---	1.7	---	1.5	---
Nesda, cool	6W		---	---	---	---	---	---	---	---	---	---	---	---
200F:														
Mined land			---	---	---	---	---	---	---	---	---	---	---	---
201D:														
Cabba	7E		---	---	---	---	---	---	---	---	---	---	---	---
Windham	6E		---	---	---	---	---	---	---	---	---	---	---	---
211B:														
Thoeny	4S		23	---	25	---	35	---	0.8	---	0.9	---	0.7	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
212B:														
Thoeny	4S		23	---	25	---	35	---	0.8	---	0.9	---	0.7	---
Elloam	6S		19	---	21	---	29	---	0.5	---	0.6	---	0.5	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
220E:														
Hillon	6E		21	---	24	---	32	---	0.5	---	0.6	---	0.5	---
Joplin	6E		27	---	30	---	44	---	0.5	---	0.6	---	0.5	---
221D:														
Hillon	4E		31	---	35	---	54	---	0.8	---	1.0	---	0.7	---
Kevin	4E		32	---	36	---	56	---	0.8	---	1.0	---	0.7	---
221E:														
Hillon	6E		---	---	---	---	---	---	---	---	---	---	---	---
Kevin	6E		---	---	---	---	---	---	---	---	---	---	---	---
224D:														
Hillon	4E		31	---	35	---	54	---	0.8	---	1.0	---	0.7	---
Joplin	4E		33	---	37	---	57	---	0.8	---	1.0	---	0.7	---
241B:														
Benz	6S		---	---	---	---	---	---	---	---	---	---	---	---
Vanda	7S		---	---	---	---	---	---	---	---	---	---	---	---
250E:														
Bascovy	6E		---	---	---	---	---	---	---	---	---	---	---	---
Neldore	7E		---	---	---	---	---	---	---	---	---	---	---	---
Weingart, thin	6E		---	---	---	---	---	---	---	---	---	---	---	---
251C:														
Bascovy	4E		26	---	28	---	42	---	1.0	---	1.2	---	1.0	---
Neldore	6S		15	---	16	---	20	---	0.5	---	0.6	---	0.5	---
270E:														
Beaverell	6E		---	---	---	---	---	---	---	---	---	---	---	---
Tinsley	7E		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
271D:														
Beaverell	6E		12	---	13	---	13	---	0.4	---	0.5	---	0.4	---
Evanston	4E		35	---	40	---	61	---	0.8	---	1.0	---	0.7	---
301C:														
Marvan, saline	6E		25	---	28	---	41	---	0.5	---	0.6	---	0.5	---
Marvan	4E		33	---	37	---	57	---	0.8	---	1.0	---	0.7	---
302B:														
Marvan, saline	6E		25	---	28	---	41	---	0.5	---	0.6	---	0.5	---
Vanda	7S		---	---	---	---	---	---	---	---	---	---	---	---
311B:														
Ferd	3E		36	---	41	---	63	---	1.2	---	1.5	---	1.2	---
Gerdrum	6S		17	---	19	---	26	---	0.5	---	0.6	---	0.5	---
312B:														
Ferd	3E		36	---	41	---	63	---	1.2	---	1.5	---	1.2	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
320A:														
Kobase	4E	4E	42	---	47	---	76	---	---	4.3	---	5.8	---	3.1
322C:														
Kobase	4E		33	---	39	---	59	---	1.0	---	1.3	---	1.0	---
Megonot	4E		22	---	24	---	33	---	0.8	---	1.1	---	0.7	---
323B:														
Kobase	4E		33	---	39	---	59	---	1.2	---	1.5	---	1.2	---
Marvan	4E		33	---	37	---	57	---	1.0	---	1.2	---	1.0	---
Weingart, thin	6S		---	---	---	---	---	---	0.5	---	0.6	---	0.5	---
331B:														
Phillips	3E		37	---	41	---	64	---	1.2	---	1.5	---	1.2	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
331C:														
Phillips	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
332B:														
Phillips	3E		37	---	41	---	64	---	1.2	---	1.5	---	1.2	---
Elloam	6S		19	---	21	---	29	---	0.5	---	0.6	---	0.5	---
333C:														
Phillips	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
Kevin	4E		33	---	37	---	58	---	1.0	---	1.3	---	1.0	---
334C:														
Phillips	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
Kevin	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
351C:														
Fortbenton	4E		33	---	39	---	59	---	1.0	---	1.3	---	1.0	---
373C:														
Evanston	3E		38	---	42	---	66	---	1.0	---	1.3	---	1.0	---
Chinook	4E		31	---	35	---	54	---	0.8	---	1.0	---	0.7	---
381B:														
Ethridge	3E		37	---	42	---	65	---	1.2	---	1.5	---	1.2	---
Gerdrum	6S		17	---	19	---	26	---	0.5	---	0.6	---	0.5	---
383C:														
Ethridge	3E		37	---	42	---	65	---	1.0	---	1.3	---	1.0	---
Beaverell	6S		14	---	16	---	19	---	0.5	---	0.6	---	0.5	---
391B:														
Creed	4S		19	---	21	---	29	---	0.8	---	0.9	---	0.7	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
392B:														
Creed	4S		19	---	21	---	29	---	0.8	---	0.9	---	0.7	---
Gerdrum	6S		17	---	19	---	26	---	0.5	---	0.6	---	0.5	---
402B:														
Gerdrum	6S		17	---	19	---	26	---	0.5	---	0.6	---	0.5	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
421C:														
Joplin	3E		36	---	41	---	63	---	1.0	---	1.3	---	1.0	---
Hillon	4E		35	---	40	---	61	---	1.0	---	1.3	---	1.0	---
424D:														
Joplin	4E		33	---	37	---	58	---	0.8	---	1.0	---	0.7	---
Telstad	4E		36	---	40	---	62	---	0.8	---	1.0	---	0.7	---
426C:														
Joplin	3E		36	---	40	---	62	---	1.0	---	1.3	---	1.0	---
Hillon	4E		33	---	39	---	59	---	1.0	---	1.3	---	1.0	---
442C:														
Kevin	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
Hillon	4E		35	---	40	---	61	---	1.0	---	1.3	---	1.0	---
444C:														
Kevin	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
Sunburst	4E		29	---	32	---	48	---	1.0	---	1.3	---	1.0	---
446D:														
Kevin	4E		31	---	34	---	53	---	0.8	---	1.0	---	0.7	---
Sunburst	4E		23	---	26	---	36	---	0.8	---	1.0	---	0.7	---
481A:														
Bigsag	7W		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
502C:														
Telstad	3E		38	---	43	---	67	---	1.0	---	1.3	---	1.0	---
Elloam	6E		19	---	21	---	29	---	0.4	---	0.5	---	0.4	---
503C:														
Telstad	3E		38	---	43	---	67	---	1.0	---	1.3	---	1.0	---
Joplin	3E		36	---	41	---	63	---	1.0	---	1.3	---	1.0	---
504C:														
Telstad	3E		38	---	43	---	67	---	1.0	---	1.3	---	1.0	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
505C:														
Telstad	3E		38	---	43	---	67	---	1.0	---	1.3	---	1.0	---
Hillon	4E		35	---	40	---	61	---	1.0	---	1.3	---	1.0	---
511B:														
Martinsdale	3E		46	---	51	---	81	---	2.2	---	2.5	---	2.5	---
Judith	3E		33	---	37	---	55	---	2.0	---	2.3	---	2.2	---
521B:														
Elloam	6S		19	---	21	---	29	---	0.5	---	0.6	---	0.5	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
561B:														
Scobey	3E		37	---	42	---	65	---	1.2	---	1.5	---	1.2	---
Phillips	3E		37	---	41	---	64	---	1.2	---	1.5	---	1.2	---
562C:														
Scobey	3E		37	---	42	---	65	---	1.0	---	1.3	---	1.0	---
Elloam	6E		19	---	21	---	29	---	0.4	---	0.5	---	0.4	---
563C:														
Scobey	3E		37	---	42	---	65	---	1.0	---	1.3	---	1.0	---
Kevin	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
564C:														
Scobey	3E		37	---	42	---	65	---	1.0	---	1.3	---	1.0	---
Kevin	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
Elloam	6E		19	---	21	---	29	---	0.4	---	0.5	---	0.4	---
566C:														
Scobey	3E		36	---	41	---	63	---	1.0	---	1.3	---	1.0	---
Kevin	6E		33	---	37	---	58	---	1.0	---	1.3	---	1.0	---
567C:														
Scobey	3E		36	---	41	---	63	---	1.0	---	1.3	---	1.0	---
Elloam	6E		19	---	21	---	29	---	0.4	---	0.5	---	0.4	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
600:														
Pits, gravel			---	---	---	---	---	---	---	---	---	---	---	---
601A:														
Havre	3E		37	---	41	---	64	---	1.5	---	1.7	---	1.5	---
Harlake	3E		36	---	41	---	63	---	1.3	---	1.5	---	1.4	---
Glendive	3E		35	---	40	---	61	---	1.5	---	1.7	---	1.5	---
603A:														
Havre	4E	4E	36	---	40	---	62	---	1.3	4.0	1.5	5.5	1.4	3.5
604A:														
Bullhook	6S		---	---	---	---	---	---	---	---	---	---	---	---
610:														
Pits, bentonite			---	---	---	---	---	---	---	---	---	---	---	---
650C:														
Yetull	6E		16	---	17	---	22	---	0.5	---	0.6	---	0.5	---
650D:														
Yetull	6E		16	---	17	---	22	---	0.3	---	0.4	---	0.3	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
731C:														
Judith----------	3E		33	---	37	---	55	---	1.8	---	2.1	---	2.0	---
Windham---------	6S		17	---	20	---	24	---	1.2	---	1.5	---	1.2	---
791E:														
Yamacall, calcareous-----	6E		25	---	27	---	40	---	0.5	---	0.6	---	0.5	---
Yamacall--------	6E		29	---	32	---	48	---	0.5	---	0.6	---	0.5	---
792C:														
Yamacall, calcareous-----	4E		37	---	42	---	65	---	1.0	---	1.3	---	1.0	---
Yamacall--------	3E		37	---	41	---	64	---	1.0	---	1.3	---	1.0	---
811A:														
Glendive--------	3E	2E	35	---	40	---	61	---	1.5	4.5	1.7	6.0	1.5	3.7
Havre-----------	3E	2E	37	---	41	---	64	---	1.5	4.5	1.7	6.0	1.5	3.7
821D:														
Savage----------	4E		---	---	---	---	---	---	1.2	---	1.5	---	1.2	---
Farnuf----------	4E		---	---	---	---	---	---	1.2	---	1.5	---	1.2	---
860C:														
Weingart--------	6E		---	---	---	---	---	---	---	---	---	---	---	---
Weingart, thin--	6E		---	---	---	---	---	---	---	---	---	---	---	---
871B:														
Tamaneen--------	3E		41	---	45	---	70	---	2.2	---	2.5	---	2.5	---
Danvers---------	3E		44	---	50	---	78	---	2.2	---	2.5	---	2.2	---
901A:														
Lallie----------	5W		15	---	16	---	20	---	---	---	---	---	---	---
902A:														
Lostriver-------	6S		---	---	---	---	---	---	---	---	---	---	---	---
Bullhook--------	6S		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
903A:														
Harlake	4E	4E	36	---	41	---	63	---	1.3	4.0	1.5	5.5	1.4	3.5
Lostriver	6S	6S	---	---	---	---	---	---	0.5	2.3	0.6	3.0	0.5	2.2
905A:														
Harlake	4E	4E	41	---	46	---	74	---	---	3.8	---	5.0	---	2.9
Havre	4E	4E	42	---	48	---	77	---	---	4.0	---	5.5	---	3.5
921D:														
Sunburst	4E		23	---	26	---	36	---	0.8	---	1.0	---	0.7	---
Kevin	4E		32	---	36	---	56	---	0.8	---	1.0	---	0.7	---
923C:														
Sunburst	4E		28	---	31	---	46	---	1.0	---	1.3	---	1.0	---
Kevin	3E		35	---	40	---	61	---	1.0	---	1.3	---	1.0	---
923F:														
Sunburst	7E		---	---	---	---	---	---	---	---	---	---	---	---
Kevin	6E		---	---	---	---	---	---	---	---	---	---	---	---
924E:														
Sunburst	6E		13	---	14	---	15	---	0.5	---	0.6	---	0.5	---
Bascovy	6E		8	---	9	---	6	---	0.5	---	0.6	---	0.5	---
Neldore	7E		---	---	---	---	---	---	0.2	---	0.3	---	0.3	---
925C:														
Sunburst	4E		30	---	34	---	52	---	1.0	---	1.3	---	1.0	---
Bascovy	4E		26	---	28	---	42	---	1.0	---	1.2	---	1.0	---
Weingart, thin	6E		---	---	---	---	---	---	0.4	---	0.4	---	0.4	---
926F:														
Sunburst	7E		---	---	---	---	---	---	---	---	---	---	---	---
Neldore	7E		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
926F:(cont.)														
Rock outcrop.														
930A:														
Wheatbelt-------	6W		14	---	15	---	18	---	---	---	---	---	---	---
971F:														
Neldore---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Cabbart---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Tinsley---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
973E:														
Neldore, cool---	7E		---	---	---	---	---	---	---	---	---	---	---	---
Bascovy---------	6E		---	---	---	---	---	---	---	---	---	---	---	---
974F:														
Pinebreaks------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Neldore---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
1021E:														
Cabbart---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Twilight--------	6E		---	---	---	---	---	---	---	---	---	---	---	---
Yawdim----------	7E		---	---	---	---	---	---	---	---	---	---	---	---
1022F:														
Hillon----------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Cabbart---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop.														
1030D:														
Marvan----------	4E		---	---	---	---	---	---	---	---	---	---	---	---
Gerdrum---------	6E		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
1037D:														
Evanston	4E		---	---	---	---	---	---	---	---	---	---	---	---
Yamacall	4E		---	---	---	---	---	---	---	---	---	---	---	---
1052B:														
Elloam	6E		---	---	---	---	---	---	---	---	---	---	---	---
Thoeny	4E		---	---	---	---	---	---	---	---	---	---	---	---
1059E:														
Weingart	6E		---	---	---	---	---	---	---	---	---	---	---	---
Vaeda	7S		---	---	---	---	---	---	---	---	---	---	---	---
Bascovy	6E		---	---	---	---	---	---	---	---	---	---	---	---
1066D:														
Twilight	4E		19	---	21	---	29	---	0.5	---	0.7	---	0.5	---
Cabbart	6E		13	---	14	---	15	---	0.4	---	0.5	---	0.4	---
Marmarth	4E		28	---	31	---	46	---	0.8	---	1.0	---	0.7	---
1090B:														
Harlake	4E		---	---	---	---	---	---	---	---	---	---	---	---
Marvan	4E		---	---	---	---	---	---	---	---	---	---	---	---
1221F:														
Hillon	7E		---	---	---	---	---	---	---	---	---	---	---	---
Kevin	6E		---	---	---	---	---	---	---	---	---	---	---	---
1251E:														
Neldore	7E		---	---	---	---	---	---	---	---	---	---	---	---
Bascovy	6E		---	---	---	---	---	---	---	---	---	---	---	---
1261B:														
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
Nobe	7S		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
1262A:														
Toston	6S		---	---	---	---	---	---	---	---	---	---	---	---
Nobe	7S		---	---	---	---	---	---	---	---	---	---	---	---
1332C:														
Phillips	3E		---	---	---	---	---	---	---	---	---	---	---	---
Elloam	6E		---	---	---	---	---	---	---	---	---	---	---	---
Thoeny	4E		---	---	---	---	---	---	---	---	---	---	---	---
1333C:														
Kevin	4E		---	---	---	---	---	---	---	---	---	---	---	---
Phillips	3E		---	---	---	---	---	---	---	---	---	---	---	---
Elloam	6E		---	---	---	---	---	---	---	---	---	---	---	---
1373C:														
Evanston	3E		38	---	42	---	66	---	1.0	---	1.3	---	1.0	---
Chinook	4E		31	---	35	---	54	---	0.8	---	1.0	---	0.7	---
Marmarth	3E		30	---	34	---	52	---	1.0	---	1.3	---	1.0	---
1392B:														
Creed	4S		---	---	---	---	---	---	---	---	---	---	---	---
Gerdrum	6S		---	---	---	---	---	---	---	---	---	---	---	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
1400F:														
Rock outcrop.														
Arsite	7E		---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
1441D:														
Kevin	4E		---	---	---	---	---	---	---	---	---	---	---	---
Scobey	4E		---	---	---	---	---	---	---	---	---	---	---	---
Phillips	3E		---	---	---	---	---	---	---	---	---	---	---	---
1443E:														
Kevin	6E		---	---	---	---	---	---	---	---	---	---	---	---
Scobey	4E		---	---	---	---	---	---	---	---	---	---	---	---
Nishon	4W		---	---	---	---	---	---	---	---	---	---	---	---
1503D:														
Telstad	4E		---	---	---	---	---	---	---	---	---	---	---	---
Joplin	4E		---	---	---	---	---	---	---	---	---	---	---	---
1523C:														
Elloam	6E		---	---	---	---	---	---	---	---	---	---	---	---
Phillips	3E		---	---	---	---	---	---	---	---	---	---	---	---
Absher	7S		---	---	---	---	---	---	---	---	---	---	---	---
1850F:														
Cabbart	7E		---	---	---	---	---	---	---	---	---	---	---	---
Twilight	7E		---	---	---	---	---	---	---	---	---	---	---	---
Delpoint	7E		---	---	---	---	---	---	---	---	---	---	---	---
1920F:														
Sunburst	7E		---	---	---	---	---	---	---	---	---	---	---	---
Neldore	7E		---	---	---	---	---	---	---	---	---	---	---	---
1970F:														
Neldore	7E		---	---	---	---	---	---	---	---	---	---	---	---
Bascovy	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop			---	---	---	---	---	---	---	---	---	---	---	---

Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Wheat, spring		Wheat, winter		Oats		Grass-legume hay		Alfalfa hay		Pasture	
	N	I	N	I	N	I	N	I	N	I	N	I	N	I
			Bu		*Bu*		*Bu*		*Tons*		*Tons*		*AUM*	
1971F:														
Yawdim----------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Cabbart---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop.														
1972F:														
Volborg---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop.														
1973F:														
Neldore, cool---	7E		---	---	---	---	---	---	---	---	---	---	---	---
Neldore---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop.														
1976F:														
Neldore---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Pinebreaks------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Bascovy---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
1977F:														
Volborg---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Pinebreaks------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop.														
2972F:														
Volborg---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Neldore---------	7E		---	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop.														
W:														
Water.														

Prime Farmland

Map symbol	Soil name
82B	Savage silty clay loam, 0 to 4 percent slopes (where irrigated)
871B	Tamaneen-Danvers clay loams, 0 to 4 percent slopes (where irrigated)

Windbreak Suitability Group Species

(The symbol < means less than; > means more than. Absence of an entry indicates that trees generally do not grow to the height for that group. Suitability group 4 generally is not suited for windbreak development.)

Windbreak suitability group	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1	Western sandcherry, skunkbush sumac	Siberian peashrub, green ash, Rocky Mountain juniper, Tatarian honeysuckle, ponderosa pine, blue spruce, common chokecherry, lilac	Russian-olive, Siberian elm	---	---
2M	Western sandcherry, Nanking cherry	Siberian peashrub, green ash, Rocky Mountain juniper, Siberian crabapple, ponderosa pine, blue spruce, common chokecherry, lilac	Russian-olive, Siberian elm	---	---
2S	Skunkbush sumac	Siberian peashrub, Rocky Mountain juniper, ponderosa pine, common chokecherry, silver buffaloberry	Russian-olive, Siberian elm	---	---
2W	Western sandcherry, purpleosier willow	Redosier dogwood, Siberian crabapple, common chokecherry, lilac	Russian-olive, green ash, ponderosa pine, blue spruce	Golden willow	Plains cottonwood
3M	Western sandcherry, Nanking cherry	Siberian peashrub, green ash, Rocky Mountain juniper, Tatarian honeysuckle, ponderosa pine, blue spruce, common chokecherry, lilac	Russian-olive, Siberian elm	---	---
3S	Skunkbush sumac	Siberian peashrub, silver buffaloberry	Russian-olive, Siberian elm	---	---
3W	Skunkbush sumac	Silver buffaloberry	Russian-olive	Siberian elm	---
4	---	---	---	---	---

Windbreak Suitability Groups

(Suitable shrubs and trees with their mature heights are listed in the adjoining Windbreak Suitability Group Species table. Absence of an entry indicates that a windbreak suitability group is not assigned. A dashed entry indicates a woodland unit and a windbreak suitability group are not assigned.)

Soil name and map symbol	Windbreak suitability group
10C: Barkof	3M
11B: Degrand	2M
13B: Beaverton	3M
25C: Bascovy	3M
28A: Nishon	3W
29A: McKenzie	4
30A: Marvan	2S
31B: Ferd	2S
32B: Kobase	2M
33B: Phillips	2M
35C: Assinniboine	2M
36C: Chinook	2M
37B: Evanston	1
37C: Evanston	1
38B: Ethridge	2M
38C: Ethridge	2M
41A: Vaeda	4
43A: Pendroy	2M

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
48A:	
Vanda	4
49A:	
Lardell	4
50B:	
Telstad	1
52B:	
Elloam	3S
56B:	
Scobey	1
59B:	
Weingart	3S
60A:	
Havre	1
75C:	
Farnuf	1
79C:	
Yamacall	1
81A:	
Glendive	2M
82B:	
Savage	2M
82C:	
Savage	2M
84F:	
Macmeal, warm	---
Macmeal	---
90A:	
Harlake	2M
93A:	
Bowdoin	4
94C:	
Busby	2M
94D:	
Busby	2M
96D:	
Megonot	3M
Kobase	2M
97D:	
Neldore	4
Bascovy	3M

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
100A:	
Hanly	3M
101E:	
Barkof	4
Windham	4
110C:	
Attewan	2M
Beaverell	3M
115F:	
Silverchief	---
Whitecow, warm	---
Macmeal	---
120F:	
Mocmont, cool	---
Mocmont	---
121F:	
Mocmont	---
Mocmont, cool	---
Tolex	---
122F:	
Mocmont, cool	---
Landusky	---
130F:	
Rubble land	4
Mocmont, cool	---
Rock outcrop	4
139F:	
Whitecow, warm	---
Warneke	---
140F:	
Whitecow	---
Whitecow, warm	---
151F:	
Warneke	---
Whitecow, warm	---
Rock outcrop	---
160D:	
Whitecow, warm	---
160E:	
Whitecow, warm	---
170A:	
Dimmick	3W
180B:	
Binna	3M
Saypo	2W

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
190B:	
Nesda	4
Nesda, cool	---
200F:	
Mined land	---
201D:	
Cabba	4
Windham	4
211B:	
Thoeny	2S
Absher	4
212B:	
Thoeny	2S
Elloam	3S
220E:	
Hillon	4
Joplin	4
221D:	
Hillon	1
Kevin	1
221E:	
Hillon	4
Kevin	4
224D:	
Hillon	1
Joplin	1
241B:	
Benz	4
Vanda	4
250E:	
Bascovy	4
Neldore	4
Weingart, thin	4
251C:	
Bascovy	3M
Neldore	4
270E:	
Beaverell	4
Tinsley	4
271D:	
Beaverell	3M
Evanston	1
301C:	
Marvan, saline	3S
Marvan	2S

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
302B:	
Marvan, saline	3S
Vanda	4
311B:	
Ferd	2S
Gerdrum	3S
312B:	
Ferd	2S
Absher	4
320A:	
Kobase	2M
322C:	
Kobase	2M
Megonot	3M
323B:	
Kobase	2M
Marvan	2S
Weingart, thin	3S
331B:	
Phillips	2M
Absher	4
331C:	
Phillips	2M
Absher	4
332B:	
Phillips	2M
Elloam	3S
333C:	
Phillips	2M
Kevin	1
334C:	
Phillips	2M
Kevin	1
351C:	
Fortbenton	1
373C:	
Evanston	1
Chinook	2M
381B:	
Ethridge	2M
Gerdrum	3S
383C:	
Ethridge	2M
Beaverell	3M
391B:	
Creed	2M
Absher	4

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
392B:	
Creed	2M
Gerdrum	3S
402B:	
Gerdrum	3S
Absher	4
421C:	
Joplin	1
Hillon	1
424D:	
Joplin	1
Telstad	1
426C:	
Joplin	1
Hillon	1
442C:	
Kevin	1
Hillon	1
444C:	
Kevin	1
Sunburst	2M
446D:	
Kevin	1
Sunburst	2M
481A:	
Bigsag	4
502C:	
Telstad	1
Elloam	3S
503C:	
Telstad	1
Joplin	1
504C:	
Telstad	1
Absher	4
505C:	
Telstad	1
Hillon	1
511B:	
Martinsdale	2M
Judith	2M
521B:	
Elloam	3S
Absher	4
561B:	
Scobey	1
Phillips	2M

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
562C:	
Scobey	1
Elloam	3S
563C:	
Scobey	1
Kevin	1
564C:	
Scobey	1
Kevin	1
Elloam	3S
566C:	
Scobey	1
Kevin	1
567C:	
Scobey	1
Elloam	3S
Absher	4
600:	
Pits, gravel	---
601A:	
Havre	1
Harlake	2M
Glendive	2M
603A:	
Havre	1
604A:	
Bullhook	3S
610:	
Pits, bentonite	---
650C:	
Yetull	3M
650D:	
Yetull	3M
731C:	
Judith	2M
Windham	3M
791E:	
Yamacall, calcareous	4
Yamacall	4
792C:	
Yamacall, calcareous	1
Yamacall	1
811A:	
Glendive	---
Havre	---

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
821D:	
Savage	2M
Farnuf	1
860C:	
Weingart	3S
Weingart, thin	3S
871B:	
Tamaneen	2M
Danvers	2M
901A:	
Lallie	4
902A:	
Lostriver	3S
Bullhook	3S
903A:	
Harlake	2M
Lostriver	3S
905A:	
Harlake	2M
Havre	2M
921D:	
Sunburst	2M
Kevin	1
923C:	
Sunburst	2M
Kevin	1
923F:	
Sunburst	4
Kevin	4
924E:	
Sunburst	4
Bascovy	4
Neldore	4
925C:	
Sunburst	3M
Bascovy	3M
Weingart, thin	3S
926F:	
Sunburst	4
Neldore	4
Rock outcrop	4
930A:	
Wheatbelt	4
971F:	
Neldore	4
Cabbart	4
Tinsley	4

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
973E:	
Neldore, cool	---
Bascovy	4
974F:	
Pinebreaks	---
Neldore	---
1021E:	
Cabbart	4
Twilight	4
Yawdim	4
1022F:	
Hillon	4
Cabbart	4
Rock outcrop	4
1030D:	
Marvan	2S
Gerdrum	3S
1037D:	
Evanston	1
Yamacall	1
1052B:	
Elloam	3S
Thoeny	2S
1059E:	
Weingart	3S
Vaeda	4
Bascovy	4
1066D:	
Twilight	3M
Cabbart	4
Marmarth	2M
1090B:	
Harlake	2M
Marvan	2S
1221F:	
Hillon	4
Kevin	4
1251E:	
Neldore	4
Bascovy	3S
1261B:	
Absher	4
Nobe	4
1262A:	
Toston	4
Nobe	4

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
1332C:	
Phillips	2M
Elloam	3S
Thoeny	2S
1333C:	
Kevin	1
Phillips	2M
Elloam	2S
1373C:	
Evanston	1
Chinook	2M
Marmarth	2M
1392B:	
Creed	2S
Gerdrum	3S
Absher	4
1400F:	
Rock outcrop	4
Arsite	4
1441D:	
Kevin	1
Scobey	1
Phillips	2M
1443E:	
Kevin	4
Scobey	4
Nishon	3W
1503D:	
Telstad	1
Joplin	1
1523C:	
Elloam	3S
Phillips	2M
Absher	4
1850F:	
Cabbart	---
Twilight	---
Delpoint	---
1920F:	
Sunburst	4
Neldore	4
1970F:	
Neldore	4
Bascovy	4
Rock outcrop	4
1971F:	
Yawdim	4
Cabbart	4
Rock outcrop	4

Windbreak Suitability Groups--Continued

Soil name and map symbol	Windbreak suitability group
1972F:	
Volborg	4
Rock outcrop	4
1973F:	
Neldore, cool	---
Neldore	---
Rock outcrop	4
1976F:	
Neldore	---
Pinebreaks	---
Bascovy	4
1977F:	
Volborg	---
Pinebreaks	---
Rock outcrop	4
2972F:	
Volborg	4
Neldore	---
Rock outcrop	4
W:	
Water.	

Range

Range makes up about 77 percent of the land in the Phillips County area. Most grazing is on native range. The range is used primarily for grazing by domestic livestock; however, it also is used as wildlife habitat, recreational areas, and watershed and has esthetic value.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on range are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Range is defined as land on which the native vegetation (the climax, or natural potential, plant community) is predominantly grasses, grasslike plants, forbs, and shrubs suitable for grazing and browsing. Range includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain shrub and forb communities. Range receives no regular or frequent cultural treatment. The composition and production of the plant community are determined by soil, climate, topography, overstory canopy, and grazing management.

Grazed forest land is defined as land on which the understory includes, as an integral part of the forest plant community, plants that can be grazed without significant impairment of other forest values.

Native pasture is defined as land on which the potential (climax) vegetation is forest but which is used and managed primarily for the production of native forage plants. Native pasture includes cutover forest land and forest land that has been cleared and is managed for native or naturalized forage plants.

The table "Rangeland Productivity and Characteristic Plant Communities" at the end of this section shows, for each listed soil, the range site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. Only those soils that are used as rangeland or are suited to use as rangeland are listed. Explanation of the column headings in this table follows.

Range site is a distinctive kind of rangeland that produces a characteristic natural plant community that differs from natural plant communities on other range sites in kind, amount, and proportion of range plants.

Many different range sites are in the survey area. Over time, the combination of plants best suited to a particular soil and climate has become established. If the soil is not excessively disturbed, this group of plants is the natural plant community for the site. Natural plant communities are not static but vary slightly from year to year and place to place.

The relationship between soils and vegetation was ascertained during this survey; thus, range sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table are also important. The "Field Office Technical Guide," which is available at local offices of the Natural Resources Conservation Service, can provide specific information about range sites.

Total production is the amount of vegetation that can be expected to grow annually on well managed range that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruit of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

Dry weight is the total annual yield per acre of air-dry vegetation. Yields are adjusted to a common percent of air-dry moisture content. The relationship

of green weight to air-dry weight varies according to such factors as exposure, amount of shade, recent rains, and unseasonable dry periods.

Characteristic vegetation consists of the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil. The plants are listed by common name.

Under *composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range Condition

Range condition is based on a comparison of the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the natural community, the better the range condition.

Abnormal disturbances that change the natural plant community include repeated overuse by livestock, excessive burning, erosion, and plowing. Grazing animals select the most palatable plants. These plants will eventually die if they are continually grazed. A very severe disturbance can completely destroy the natural community. Under these conditions, the less desirable plants, such as annuals and weedlike plants, can invade. If the plant community has not deteriorated significantly, it eventually can return to dominantly natural plants if proper grazing management is applied.

Four range condition classes are used to show the degree of deterioration of the natural plant community.

An area of rangeland is in *excellent condition* if more than 75 percent of the present plant community is the same as the natural plant community. It is in *good condition* if the natural plants make up 51 to 75 percent of the present plant community, in *fair condition* if those plants make up 26 to 50 percent, and in *poor condition* if they make up less than 25 percent.

Knowledge of the range site and condition is necessary as a basis for planning and applying the management needed to maintain or improve the desired plant community for selected uses. Such information is needed to determine management objectives, proper grazing systems and stocking rates, suitable wildlife management practices, the potential for recreational uses, and the condition of watersheds.

Rangeland Management

Rangeland management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, reduction of less desirable species, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Grazing management is the most important part of any rangeland management program. Proper grazing use, timely deferment of grazing, and planned rotation grazing systems are key practices. The experience of ranchers and research have shown that if no more than one-half of the current year's growth is grazed, a plant community in good or excellent condition can be maintained and one in fair condition can be improved. The remaining one-half enables plants to make and store food for regrowth and root development. As a result, the desirable plants remain healthy and are not replaced by less desirable grasses and weeds. Also, the plant cover protects the soil from water erosion and soil blowing, improves tilth, increases the rate of water infiltration, and helps to control runoff.

Certain practices commonly are needed to obtain a uniform distribution of grazing. These include developing livestock watering facilities, fencing, properly locating salt and mineral supplements, constructing livestock trails in steeply sloping areas, and riding or herding.

Various kinds of grazing systems can be used in range management. No single grazing system is best under all conditions. The grazing system should increase the quantity and improve the quality of the range vegetation, should meet the needs of the individual operator, and should be designed according to the topography, the type of grazing animals, and the resource management objectives.

Special improvement practices are needed in areas where management practices do not achieve the desired results or where recovery is too slow under forage management alone. These include range seeding, brush management, water spreading, prescribed burning, and mechanical treatment.

Some soils are suited to mechanical treatment for range improvement. On other soils, however, only proper grazing management can improve the range. Many soils in capability classes 1 through 4 are suited to such practices as seeding, mechanical brush and weed control, and water spreading. Those in capability classes 7 and 8, however, are not suitable. Many soils in capability classes 1 through 4 are suited to tillage for seedbed preparation before native or introduced forage plant species are seeded. Soils in capability class 6 may be suited to limited surface disturbance, such as scarification, for the purpose of seeding and as a means of increasing the rate of water infiltration for seed germination.

Where feasible, mechanical renovation practices, such as shallow chiseling, can help to speed recovery of the desired plants. These practices open up the surface and thus allow the absorption of more moisture and production of the more desirable plants. Mechanical renovation, brush management, and timely deferment of grazing allow recovery of the desired plants.

Seeding may be needed in areas where the less desirable plants are dominant. A clean, firm seedbed should be prepared, suitable species should be selected for seeding, and rest periods should be long enough to allow the new plants to become established.

Special improvement practices can be effective only if the management system helps to keep the desirable plants healthy.

Woodland Understory Vegetation

Understory vegetation consists of grasses, forbs, shrubs, and other plants. If well managed, some forest land can produce enough understory vegetation to support grazing of livestock or wildlife, or both, without damage to the trees.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees in the canopy, the density of the canopy, and the depth and condition of the litter. The density of the canopy determines the amount of light that understory plants receive.

The table "Woodland Understory Vegetation and Habitat Types" at the end of this section shows, for each soil suitable for forest land, the potential for producing understory vegetation. The *total production* of understory vegetation includes the herbaceous plants and the leaves, twigs, and fruit of woody plants up to a height of 4.5 feet. It is expressed in pounds per acre of air-dry vegetation in favorable, normal, and unfavorable years. In a favorable year, soil moisture is above average during the optimal part of the growing season; in a normal year, soil moisture is average; and in an unfavorable year, it is below average.

The table also lists the common names of the *characteristic vegetation* on each soil and the *composition*, by percentage of air-dry weight, of each kind of plant. The table shows the kind and percentage of understory plants expected under a canopy density that is most nearly typical of forest land in which the production of wood crops is highest. The *representative habitat type* is an aggregation of all land areas capable of producing similar climax plant communities. The representative habitat type or phase displayed in this table is documented in "Forest Habitat Types of Montana" (Pfister and others, 1977).

Rangeland Productivity and Characteristic Plant Communities

(Only the soils that support rangeland vegetation suitable for grazing are listed. Ppt means precipitation.)

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
10C:					
Barkof	Clayey, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,400	Bluebunch wheatgrass	25
		Normal	1,900	Western wheatgrass	15
		Unfavorable	1,300	Green needlegrass	15
				Rough fescue	15
				Idaho fescue	5
				Sedge	5
				Big sagebrush	5
				Other perennial forbs	5
				Other shrubs	5
11B:					
Degrand	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Prairie sandreed	25
		Normal	1,500	Little bluestem	20
		Unfavorable	1,100	Needleandthread	15
				Thickspike wheatgrass	10
				Sand dropseed	10
				Other perennial forbs	5
				Western wheatgrass	5
13B:					
Beaverton	Shallow to gravel, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, North	Favorable	1,800	Bluebunch wheatgrass	50
		Normal	1,500	Rough fescue	20
		Unfavorable	1,000	Other perennial forbs	15
				Needleandthread	5
				Threadleaf sedge	5
				Idaho fescue	5
25C:					
Bascovy	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,300	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	20
				Other perennial forbs	10
				Little bluestem	5
				Other perennial grasses	5
28A:					
Nishon	Overflow, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	3,000	Basin wildrye	25
		Normal	2,500	Green needlegrass	20
		Unfavorable	2,000	Western wheatgrass	20
				Other perennial forbs	10
				Silver sagebrush	5
				Slender wheatgrass	5
				Sedge	5
				Other perennial grasses	5
				Other shrubs	5
29A:					
McKenzie	Overflow, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	2,500	Basin wildrye	30
		Normal	2,000	Green needlegrass	20
		Unfavorable	1,500	Other perennial grasses	15
				Slender wheatgrass	10
				Western wheatgrass	5
				Other perennial forbs	5
				Other perennial grasslikes	5
				Other shrubs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
30A:					
Marvan	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,600	Western wheatgrass	30
		Normal	1,100	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Big sagebrush	5
				Other perennial forbs	5
31B:					
Ferd	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	25
		Normal	1,400	Bluebunch wheatgrass	25
		Unfavorable	1,000	Needleandthread	20
				Green needlegrass	15
				Other perennial grasses	10
				Other perennial forbs	5
32B:					
Kobase	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,500	Bluebunch wheatgrass	25
		Unfavorable	1,000	Western wheatgrass	15
				Other perennial forbs	5
				Other shrubs	5
33B:					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
35C:					
Assinniboine	Sandy, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	2,000	Prairie sandreed	30
		Normal	1,600	Needleandthread	20
		Unfavorable	1,000	Western wheatgrass	20
				Bluebunch wheatgrass	10
				Indian ricegrass	10
36C:					
Chinook	Sandy, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	35
		Normal	1,500	Needleandthread	20
		Unfavorable	1,200	Western wheatgrass	15
				Other perennial grasses	10
				Green needlegrass	10
				Other perennial forbs	5
				Other shrubs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
37B:					
Evanston	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	20
		Normal	1,500	Green needlegrass	20
		Unfavorable	1,000	Little bluestem	10
				Bluebunch wheatgrass	10
				Other perennial forbs	10
				Needleandthread	10
				Silver sagebrush	5
				Other shrubs	5
				Other perennial grasses	5
				Lomatium	1
37C:					
Evanston	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	20
		Normal	1,500	Green needlegrass	20
		Unfavorable	1,000	Little bluestem	10
				Bluebunch wheatgrass	10
				Other perennial forbs	10
				Needleandthread	10
				Silver sagebrush	5
				Other shrubs	5
				Other perennial grasses	5
				Lomatium	1
38B:					
Ethridge	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,300	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Other perennial forbs	5
				Other perennial grasses	5
				Other shrubs	5
38C:					
Ethridge	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,300	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Other perennial forbs	5
				Other perennial grasses	5
				Other shrubs	5
41A:					
Vaeda	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	800	Western wheatgrass	45
		Normal	400	Fourwing saltbush	15
		Unfavorable	250	Green needlegrass	10
				Other annual forbs	5
				Saltgrass	5
				Big sagebrush	5
				Sandberg bluegrass	5
				Other perennial forbs	5
				Other perennial grasses	5
				Greasewood	5
43A:					
Pendroy	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	15
				Other perennial forbs	5
				Thickspike wheatgrass	5
				Other perennial grasses	5
				Other shrubs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
48A:					
Vanda	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	50
		Normal	900	Big sagebrush	10
		Unfavorable	600	Other perennial forbs	5
				Wild sarsaparilla	5
				Other perennial grasses	5
				Green needlegrass	5
				Nuttall alkaligrass	5
				Alkali sacaton	5
				Bottlebrush squirreltail	5
				Greasewood	1
49A:					
Lardell	Saline upland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	500	Alkali sacaton	25
		Normal	350	Nuttall alkaligrass	25
		Unfavorable	150	Basin wildrye	15
				Inland saltgrass	10
				Western wheatgrass	10
				Alkali cordgrass	10
				Greasewood	5
50B:					
Telstad	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	45
		Normal	1,300	Green needlegrass	20
		Unfavorable	900	Needleandthread	15
				Other perennial grasses	10
				Other perennial forbs	5
				Winterfat	5
52B:					
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3
56B:					
Scobey	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Green needlegrass	20
				Needleandthread	20
				Other shrubs	5
				Other perennial forbs	5
59B:					
Weingart	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	25
		Normal	1,000	Green needlegrass	20
		Unfavorable	700	Fourwing saltbush	10
				Needleandthread	10
				Thickspike wheatgrass	10
				Other perennial grasses	10
				Other perennial forbs	5
				Other shrubs	5
				Winterfat	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
60A:					
Havre	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	25
		Normal	1,500	Western wheatgrass	15
		Unfavorable	1,200	Needleandthread	15
				Green needlegrass	10
				Common snowberry	5
				Other perennial forbs	5
				Slender wheatgrass	5
				Canada wildrye	5
75C:					
Farnuf	Silty, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, Central	Favorable	2,500	Bluebunch wheatgrass	30
		Normal	2,100	Green needlegrass	15
		Unfavorable	1,500	Western wheatgrass	10
				Other perennial forbs	10
				Needleandthread	10
				Other perennial grasses	10
				Other shrubs	10
				Blue grama	5
79C:					
Yamacall	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,400	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	15
				Bluebunch wheatgrass	10
				Little bluestem	10
				Other perennial forbs	5
				Plains muhly	5
81A:					
Glendive	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,600	Needleandthread	10
		Normal	1,200	Prairie sandreed	10
		Unfavorable	800	Western wheatgrass	5
				Thickspike wheatgrass	5
				Indian ricegrass	5
				Green needlegrass	5
				Common snowberry	3
				Rose	2
				Prairie junegrass	1
82B:					
Savage	Clayey, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,000	Bluebunch wheatgrass	40
		Normal	1,700	Other perennial grasses	15
		Unfavorable	1,400	Other perennial forbs	10
				Western wheatgrass	10
				Other shrubs	5
82C:					
Savage	Clayey, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,000	Bluebunch wheatgrass	40
		Normal	1,700	Other perennial grasses	15
		Unfavorable	1,400	Other perennial forbs	10
				Western wheatgrass	10
				Other shrubs	5
90A:					
Harlake	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,500	Western wheatgrass	35
		Unfavorable	1,000	Silver sagebrush	5
				Snowberry	1
				Rose	1

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
93A:					
Bowdoin	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Western wheatgrass	80
		Normal	800	Other perennial forbs	5
		Unfavorable	500	Silver sagebrush	5
				Greasewood	3
				Nuttall alkaligrass	3
				Big sagebrush	2
				Bottlebrush squirreltail	2
94C:					
Busby	Sandy, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Prairie sandreed	30
		Normal	1,500	Bluebunch wheatgrass	20
		Unfavorable	1,200	Needleandthread	20
				Indian ricegrass	10
				Sedge	5
				Other perennial forbs	5
94D:					
Busby	Sandy, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Prairie sandreed	30
		Normal	1,500	Bluebunch wheatgrass	20
		Unfavorable	1,200	Needleandthread	20
				Indian ricegrass	10
				Sedge	5
				Other perennial forbs	5
96D:					
Megonot	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	15
				Prairie junegrass	5
				Blue grama	5
				Other perennial forbs	5
				Other shrubs	5
Kobase	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,500	Bluebunch wheatgrass	25
		Unfavorable	1,000	Western wheatgrass	15
				Other perennial forbs	5
				Other shrubs	5
97D:					
Neldore	Shallow clay, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5
Bascovy	Clayey, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,300	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	20
				Other perennial forbs	10
				Little bluestem	5
				Other perennial grasses	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
100A:					
Hanly----------	Sandy, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,400	Needleandthread----------	30
		Normal	1,200	Prairie sandreed----------	15
		Unfavorable	1,000	Other perennial grasslikes------	15
				Other shrubs----------	10
				Other perennial forbs----------	10
				Blue grama----------	5
				Western wheatgrass----------	5
				Sand dropseed----------	5
				Other perennial grasses---------	5
101E:					
Barkof----------	Clayey, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,000	Bluebunch wheatgrass----------	25
		Normal	1,700	Rough fescue----------	20
		Unfavorable	1,200	Idaho fescue----------	10
				Western wheatgrass----------	10
				Sedge----------	5
				Big sagebrush----------	5
				Other perennial forbs----------	5
				Green needlegrass----------	5
				Other shrubs----------	5
Windham---------	Silty, limy, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,600	Bluebunch wheatgrass----------	60
		Normal	2,200	Other perennial grasses---------	15
		Unfavorable	1,500	Green needlegrass----------	10
				Western wheatgrass----------	5
				Other perennial forbs----------	5
110C:					
Attewan----------	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass----------	45
		Normal	1,400	Western wheatgrass----------	10
		Unfavorable	900	Green needlegrass----------	10
				Needleandthread----------	10
				Other perennial grasses---------	10
				Other perennial forbs----------	5
				Other shrubs----------	5
				Winterfat----------	5
Beaverell-------	Shallow to gravel, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass----------	45
		Normal	700	Western wheatgrass----------	15
		Unfavorable	500	Other perennial grasses---------	5
				Prairie junegrass----------	5
				Other shrubs----------	5
				Plains muhly----------	5
				Green needlegrass----------	5
				Needleandthread----------	5
				Other perennial forbs----------	5
				Winterfat----------	1
				Thickspike wheatgrass----------	1
				Indian ricegrass----------	1
170A:					
Dimmick----------	Overflow, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	5,700	Other perennial grasslikes------	25
		Normal	5,200	Rivergrass----------	20
		Unfavorable	4,700	Prairie cordgrass----------	20
				Slough sedge----------	15
				Other perennial grasses---------	15
				Other perennial forbs----------	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
180B:					
Binna	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,400	Bluebunch wheatgrass	30
		Normal	1,200	Western wheatgrass	20
		Unfavorable	900	Needleandthread	20
				Green needlegrass	10
				Prairie junegrass	5
				Other perennial grasses	5
				Other shrubs	5
				Other perennial forbs	5
Saypo	Subirrigated, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	5,000	Northern reedgrass	40
		Normal	4,100	Northern mannagrass	10
		Unfavorable	3,000	Tufted hairgrass	5
				Basin wildrye	5
				Sedge	5
				Slender wheatgrass	5
				Other perennial grasses	5
				Other shrubs	5
				Other perennial forbs	5
				Rocky mountain iris	1
				Shrubby cinquefoil	1
190B:					
Nesda	Shallow to gravel, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	1,800	Bluebunch wheatgrass	40
		Normal	1,500	Prairie sandreed	15
		Unfavorable	1,000	Needleandthread	10
				Western wheatgrass	5
				Canby bluegrass	5
				Sedge	5
				Other perennial forbs	5
				Other perennial grasses	5
				Rose	5
201D:					
Cabba	Shallow, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	1,700	Bluebunch wheatgrass	30
		Normal	1,400	Idaho fescue	20
		Unfavorable	800	Rough fescue	15
				Western wheatgrass	10
				Other perennial forbs	10
				Green needlegrass	10
Windham	Silty, limy, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,600	Bluebunch wheatgrass	60
		Normal	2,200	Other perennial grasses	15
		Unfavorable	1,500	Green needlegrass	10
				Western wheatgrass	5
				Other perennial forbs	5
211B:					
Thoeny	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Western wheatgrass	45
		Normal	1,200	Green needlegrass	10
		Unfavorable	800	Needleandthread	10
				Other perennial forbs	10
				Sandberg bluegrass	5
				Silver sagebrush	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
211B:					
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
212B:					
Thoeny	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Western wheatgrass	45
		Normal	1,200	Green needlegrass	10
		Unfavorable	800	Needleandthread	10
				Other perennial forbs	10
				Sandberg bluegrass	5
				Silver sagebrush	5
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3
220E:					
Hillon	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,450	Bluebunch wheatgrass	35
		Normal	1,200	Green needlegrass	20
		Unfavorable	850	Western wheatgrass	10
				Little bluestem	10
				Thickspike wheatgrass	10
				Needleandthread	10
Joplin	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,400	Bluebunch wheatgrass	40
		Normal	1,000	Western wheatgrass	20
		Unfavorable	700	Green needlegrass	20
				Needleandthread	10
				Other perennial forbs	5
				Silver sagebrush	5
221D:					
Hillon	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	25
		Unfavorable	1,000	Needleandthread	15
				Green needlegrass	15
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Green needlegrass	40
		Normal	1,200	Bluebunch wheatgrass	25
		Unfavorable	800	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
221E:					
Hillon	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,450	Bluebunch wheatgrass	35
		Normal	1,200	Green needlegrass	20
		Unfavorable	850	Western wheatgrass	10
				Little bluestem	10
				Thickspike wheatgrass	10
				Needleandthread	10
Kevin	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,400	Bluebunch wheatgrass	50
		Normal	1,000	Western wheatgrass	20
		Unfavorable	700	Green needlegrass	20
				Other perennial forbs	10
224D:					
Hillon	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	25
		Unfavorable	1,000	Needleandthread	15
				Green needlegrass	15
Joplin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Needleandthread	20
				Green needlegrass	15
				Other perennial forbs	10
				Silver sagebrush	5
241B:					
Benz	Saline upland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	500	Western wheatgrass	50
		Normal	300	Alkali sacaton	15
		Unfavorable	200	Inland saltgrass	10
				Other perennial grasses	10
				Greasewood	5
				Other perennial forbs	5
				Other shrubs	5
Vanda	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	50
		Normal	900	Big sagebrush	10
		Unfavorable	600	Other perennial forbs	5
				Wild sarsaparilla	5
				Other perennial grasses	5
				Green needlegrass	5
				Nuttall alkaligrass	5
				Alkali sacaton	5
				Bottlebrush squirreltail	5
				Greasewood	1
250E:					
Bascovy	Thin clayey, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,450	Bluebunch wheatgrass	25
		Normal	1,200	Western wheatgrass	20
		Unfavorable	850	Thickspike wheatgrass	15
				Green needlegrass	15
				Little bluestem	10
				Needleandthread	10
Neldore	Shallow clay, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
250E:(cont.)					
Weingart, thin--	Dense clay, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	800	Western wheatgrass	40
		Normal	600	Green needlegrass	20
		Unfavorable	400	Fourwing saltbush	10
				Other perennial grasses	10
				Thickspike wheatgrass	10
				Other perennial forbs	5
				Other shrubs	5
251C:					
Bascovy	Clayey, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,300	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	20
				Other perennial forbs	10
				Little bluestem	5
				Other perennial grasses	5
Neldore	Shallow clay, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5
270E:					
Beaverell	Shallow to gravel, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	45
		Normal	700	Western wheatgrass	15
		Unfavorable	500	Other perennial grasses	5
				Prairie junegrass	5
				Other shrubs	5
				Plains muhly	5
				Green needlegrass	5
				Needleandthread	5
				Other perennial forbs	5
				Winterfat	1
				Thickspike wheatgrass	1
				Indian ricegrass	1
Tinsley	Gravel, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	35
		Normal	700	Needleandthread	15
		Unfavorable	500	Western wheatgrass	10
				Plains muhly	10
				Sand dropseed	10
				Indian ricegrass	5
				Sedge	5
				Yucca	5
271D:					
Beaverell	Shallow to gravel, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	45
		Normal	700	Western wheatgrass	15
		Unfavorable	500	Other perennial grasses	5
				Prairie junegrass	5
				Other shrubs	5
				Plains muhly	5
				Green needlegrass	5
				Needleandthread	5
				Other perennial forbs	5
				Winterfat	1
				Thickspike wheatgrass	1
				Indian ricegrass	1

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
271D:(cont.)					
Evanston	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	20
		Normal	1,500	Green needlegrass	20
		Unfavorable	1,000	Little bluestem	10
				Bluebunch wheatgrass	10
				Other perennial forbs	10
				Needleandthread	10
				Silver sagebrush	5
				Other shrubs	5
				Other perennial grasses	5
				Lomatium	1
301C:					
Marvan, saline--	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	45
		Normal	900	Green needlegrass	15
		Unfavorable	700	Fourwing saltbush	10
				Thickspike wheatgrass	10
				Greasewood	5
				Other perennial grasses	5
Marvan	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,600	Western wheatgrass	30
		Normal	1,100	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Big sagebrush	5
				Other perennial forbs	5
302B:					
Marvan, saline--	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	45
		Normal	900	Green needlegrass	15
		Unfavorable	700	Fourwing saltbush	10
				Thickspike wheatgrass	10
				Greasewood	5
				Other perennial grasses	5
Vanda	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	50
		Normal	900	Big sagebrush	10
		Unfavorable	600	Other perennial forbs	5
				Wild sarsaparilla	5
				Other perennial grasses	5
				Green needlegrass	5
				Nuttall alkaligrass	5
				Alkali sacaton	5
				Bottlebrush squirreltail	5
				Greasewood	1
311B:					
Ferd	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	25
		Normal	1,400	Bluebunch wheatgrass	25
		Unfavorable	1,000	Needleandthread	20
				Green needlegrass	15
				Other perennial grasses	10
				Other perennial forbs	5
Gerdrum	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Other perennial grasses	15
		Unfavorable	500	Green needlegrass	15
				Needleandthread	10
				Big sagebrush	5
				Alkali sacaton	5
				Other perennial forbs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
312B:					
Ferd	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	25
		Normal	1,400	Bluebunch wheatgrass	25
		Unfavorable	1,000	Needleandthread	20
				Green needlegrass	15
				Other perennial grasses	10
				Other perennial forbs	5
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
320A:					
Kobase	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	35
		Normal	1,300	Western wheatgrass	20
		Unfavorable	900	Thickspike wheatgrass	15
				Big sagebrush	5
				Plains muhly	5
				Other perennial forbs	5
				Sandberg bluegrass	5
				Winterfat	3
322C:					
Kobase	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,500	Bluebunch wheatgrass	25
		Unfavorable	1,000	Western wheatgrass	15
				Other perennial forbs	5
				Other shrubs	5
Megonot	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	15
				Prairie junegrass	5
				Blue grama	5
				Other perennial forbs	5
				Other shrubs	5
323B:					
Kobase	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,500	Bluebunch wheatgrass	25
		Unfavorable	1,000	Western wheatgrass	15
				Other perennial forbs	5
				Other shrubs	5
Marvan	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,600	Western wheatgrass	30
		Normal	1,100	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Big sagebrush	5
				Other perennial forbs	5
Weingart, thin	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	800	Western wheatgrass	40
		Normal	600	Green needlegrass	20
		Unfavorable	400	Fourwing saltbush	10
				Other perennial grasses	10
				Thickspike wheatgrass	10
				Other perennial forbs	5
				Other shrubs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
331B:					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
331C:					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
332B:					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
332B:(cont.)					
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3
333C:					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Green needlegrass	40
		Normal	1,200	Bluebunch wheatgrass	25
		Unfavorable	800	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
334C:					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
351C:					
Fortbenton	Sandy, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	2,000	Prairie sandreed	30
		Normal	1,500	Needleandthread	20
		Unfavorable	1,000	Indian ricegrass	15
				Western wheatgrass	5
				Other perennial forbs	5
				Bluebunch wheatgrass	5
				Other perennial grasses	5
				Sand dropseed	5
				Other shrubs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
373C:					
Evanston	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	20
		Normal	1,500	Green needlegrass	20
		Unfavorable	1,000	Little bluestem	10
				Bluebunch wheatgrass	10
				Other perennial forbs	10
				Needleandthread	10
				Silver sagebrush	5
				Other shrubs	5
				Other perennial grasses	5
				Lomatium	1
Chinook	Sandy, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	2,000	Prairie sandreed	30
		Normal	1,500	Needleandthread	20
		Unfavorable	1,000	Indian ricegrass	15
				Western wheatgrass	5
				Other perennial forbs	5
				Bluebunch wheatgrass	5
				Other perennial grasses	5
				Sand dropseed	5
				Other shrubs	5
381B:					
Ethridge	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,300	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Other perennial forbs	5
				Other perennial grasses	5
				Other shrubs	5
Gerdrum	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Other perennial grasses	15
		Unfavorable	500	Green needlegrass	15
				Needleandthread	10
				Big sagebrush	5
				Alkali sacaton	5
				Other perennial forbs	5
383C:					
Ethridge	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,300	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Other perennial forbs	5
				Other perennial grasses	5
				Other shrubs	5
Beaverell	Shallow to gravel, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	45
		Normal	700	Western wheatgrass	15
		Unfavorable	500	Other perennial grasses	5
				Prairie junegrass	5
				Other shrubs	5
				Plains muhly	5
				Green needlegrass	5
				Needleandthread	5
				Other perennial forbs	5
				Winterfat	1
				Thickspike wheatgrass	1
				Indian ricegrass	1

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
391B:					
Creed	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Western wheatgrass	45
		Normal	1,200	Green needlegrass	15
		Unfavorable	800	Winterfat	10
				Threadleaf sedge	5
				Big sagebrush	5
				Bluebunch wheatgrass	5
				Other perennial forbs	5
				Other perennial grasses	5
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
392B:					
Creed	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Western wheatgrass	45
		Normal	1,200	Green needlegrass	15
		Unfavorable	800	Winterfat	10
				Threadleaf sedge	5
				Big sagebrush	5
				Bluebunch wheatgrass	5
				Other perennial forbs	5
				Other perennial grasses	5
Gerdrum	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Other perennial grasses	15
		Unfavorable	500	Green needlegrass	15
				Needleandthread	10
				Big sagebrush	5
				Alkali sacaton	5
				Other perennial forbs	5
402B:					
Gerdrum	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Other perennial grasses	15
		Unfavorable	500	Green needlegrass	15
				Needleandthread	10
				Big sagebrush	5
				Alkali sacaton	5
				Other perennial forbs	5
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
421C:					
Joplin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Western wheatgrass	25
		Normal	1,400	Bluebunch wheatgrass	20
		Unfavorable	1,000	Needleandthread	20
				Other perennial forbs	10
				Green needlegrass	10
				Other shrubs	5
				Silver sagebrush	5
				Other perennial grasses	5
Hillon	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	25
		Unfavorable	1,000	Needleandthread	15
				Green needlegrass	15
424D:					
Joplin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Western wheatgrass	25
		Normal	1,400	Bluebunch wheatgrass	20
		Unfavorable	1,000	Needleandthread	20
				Other perennial forbs	10
				Green needlegrass	10
				Other shrubs	5
				Silver sagebrush	5
				Other perennial grasses	5
Telstad	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	45
		Normal	1,300	Green needlegrass	20
		Unfavorable	900	Needleandthread	15
				Other perennial grasses	10
				Other perennial forbs	5
				Winterfat	5
426C:					
Joplin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Needleandthread	20
				Green needlegrass	15
				Other perennial forbs	10
				Silver sagebrush	5
Hillon	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	25
		Unfavorable	1,000	Needleandthread	15
				Green needlegrass	15
442C:					
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
Hillon	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	25
		Unfavorable	1,000	Needleandthread	15
				Green needlegrass	15

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
444C:					
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
Sunburst	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Green needlegrass	35
		Normal	1,100	Western wheatgrass	25
		Unfavorable	700	Other perennial forbs	10
				Porcupinegrass	10
				Silver sagebrush	5
				Bluebunch wheatgrass	5
446D:					
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Green needlegrass	40
		Normal	1,200	Bluebunch wheatgrass	25
		Unfavorable	800	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
Sunburst	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Green needlegrass	35
		Normal	1,100	Western wheatgrass	25
		Unfavorable	700	Other perennial forbs	10
				Porcupinegrass	10
				Silver sagebrush	5
				Bluebunch wheatgrass	5
481A:					
Bigsag	Saline lowland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	3,000	Western wheatgrass	30
		Normal	2,400	Alkali sacaton	30
		Unfavorable	1,700	Inland saltgrass	10
				Fourwing saltbush	5
				Alkali bluegrass	5
				Sedge	5
				Other perennial forbs	5
				Other perennial grasses	5
				Greasewood	5
502C:					
Telstad	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	45
		Normal	1,300	Green needlegrass	20
		Unfavorable	900	Needleandthread	15
				Other perennial grasses	10
				Other perennial forbs	5
				Winterfat	5
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
503C:					
Telstad	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	45
		Normal	1,300	Green needlegrass	20
		Unfavorable	900	Needleandthread	15
				Other perennial grasses	10
				Other perennial forbs	5
				Winterfat	5
Joplin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Western wheatgrass	25
		Normal	1,400	Bluebunch wheatgrass	20
		Unfavorable	1,000	Needleandthread	20
				Other perennial forbs	10
				Green needlegrass	10
				Other shrubs	5
				Silver sagebrush	5
				Other perennial grasses	5
504C:					
Telstad	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	45
		Normal	1,300	Green needlegrass	20
		Unfavorable	900	Needleandthread	15
				Other perennial grasses	10
				Other perennial forbs	5
				Winterfat	5
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
505C:					
Telstad	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	45
		Normal	1,300	Green needlegrass	20
		Unfavorable	900	Needleandthread	15
				Other perennial grasses	10
				Other perennial forbs	5
				Winterfat	5
Hillon	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	25
		Unfavorable	1,000	Needleandthread	15
				Green needlegrass	15
511B:					
Martinsdale	Silty, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, Central	Favorable	2,600	Bluebunch wheatgrass	30
		Normal	2,200	Rough fescue	30
		Unfavorable	1,500	Idaho fescue	15
				Other perennial grasses	10
				Other perennial forbs	10
				Silver sagebrush	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
511B:(cont.)					
Judith----------	Silty, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, Central	Favorable	2,600	Bluebunch wheatgrass----------	30
		Normal	2,200	Idaho fescue----------	10
		Unfavorable	1,500	Rough fescue----------	10
				Columbia needlegrass----------	10
				Other perennial forbs----------	10
				Green needlegrass----------	10
				Other perennial grasses---------	10
				Winterfat----------	5
				Other shrubs----------	5
521B:					
Elloam----------	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass----------	35
		Normal	900	Green needlegrass----------	15
		Unfavorable	500	Needleandthread----------	10
				Alkali sacaton----------	10
				Other perennial forbs----------	5
				Big sagebrush----------	5
				Other perennial grasses---------	5
				Montana wheatgrass----------	5
				Winterfat----------	3
Absher----------	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass----------	45
		Normal	600	Green needlegrass----------	20
		Unfavorable	400	Plains reedgrass----------	10
				Fourwing saltbush----------	5
				Other perennial forbs----------	5
				Big sagebrush----------	5
				Bottlebrush squirreltail--------	5
561B:					
Scobey----------	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass----------	30
		Normal	1,500	Western wheatgrass----------	20
		Unfavorable	1,000	Green needlegrass----------	20
				Needleandthread----------	20
				Other shrubs----------	5
				Other perennial forbs----------	5
Phillips--------	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass----------	30
		Normal	1,500	Needleandthread----------	15
		Unfavorable	1,000	Green needlegrass----------	10
				Other perennial forbs----------	10
				Bluebunch wheatgrass----------	5
				Sandberg bluegrass----------	5
				Silver sagebrush----------	5
				Blue grama----------	5
				Other perennial grasses---------	5
				Prairie junegrass----------	5
				Porcupinegrass----------	5
562C:					
Scobey----------	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass----------	30
		Normal	1,500	Western wheatgrass----------	20
		Unfavorable	1,000	Green needlegrass----------	20
				Needleandthread----------	20
				Other shrubs----------	5
				Other perennial forbs----------	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
562C: (cont.)					
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3
563C:					
Scobey	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Green needlegrass	20
				Needleandthread	20
				Other shrubs	5
				Other perennial forbs	5
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
564C:					
Scobey	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Green needlegrass	20
				Needleandthread	20
				Other shrubs	5
				Other perennial forbs	5
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3
566C:					
Scobey	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Green needlegrass	20
				Needleandthread	20
				Other shrubs	5
				Other perennial forbs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
566C:(cont.)					
Kevin	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Green needlegrass	40
		Normal	1,200	Bluebunch wheatgrass	25
		Unfavorable	800	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
567C:					
Scobey	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Green needlegrass	20
				Needleandthread	20
				Other shrubs	5
				Other perennial forbs	5
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	10
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Greasewood	5
				Montana wheatgrass	5
				Winterfat	3
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
601A:					
Havre	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	25
		Normal	1,500	Western wheatgrass	15
		Unfavorable	1,200	Needleandthread	15
				Green needlegrass	10
				Common snowberry	5
				Other perennial forbs	5
				Slender wheatgrass	5
				Canada wildrye	5
Harlake	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,500	Western wheatgrass	35
		Unfavorable	1,000	Silver sagebrush	5
				Snowberry	1
				Rose	1
Glendive	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,600	Needleandthread	10
		Normal	1,200	Prairie sandreed	10
		Unfavorable	800	Western wheatgrass	5
				Thickspike wheatgrass	5
				Indian ricegrass	5
				Green needlegrass	5
				Common snowberry	3
				Rose	2
				Prairie junegrass	1

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
603A:					
Havre	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	40
		Normal	1,500	Green needlegrass	35
		Unfavorable	1,200	Silver sagebrush	5
				Slender wheatgrass	5
				Other perennial forbs	5
604A:					
Bullhook	Saline upland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	250	Western wheatgrass	30
		Normal	175	Alkali sacaton	15
		Unfavorable	100	Gardner saltbush	10
				Other shrubs	10
				Inland saltgrass	10
				Other perennial grasses	10
				Greasewood	10
				Other perennial forbs	5
650C:					
Yetull	Sands, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	2,400	Prairie sandreed	40
		Normal	2,000	Indian ricegrass	20
		Unfavorable	1,600	Other perennial forbs	10
				Needleandthread	10
				Other perennial grasses	10
				Other shrubs	5
650D:					
Yetull	Sands, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	2,400	Prairie sandreed	40
		Normal	2,000	Indian ricegrass	20
		Unfavorable	1,600	Other perennial forbs	10
				Needleandthread	10
				Other perennial grasses	10
				Other shrubs	5
731C:					
Judith	Silty, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, Central	Favorable	2,600	Bluebunch wheatgrass	30
		Normal	2,200	Idaho fescue	10
		Unfavorable	1,500	Rough fescue	10
				Columbia needlegrass	10
				Other perennial forbs	10
				Green needlegrass	10
				Other perennial grasses	10
				Winterfat	5
				Other shrubs	5
Windham	Silty, limy, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,600	Bluebunch wheatgrass	60
		Normal	2,200	Other perennial grasses	15
		Unfavorable	1,500	Green needlegrass	10
				Western wheatgrass	5
				Other perennial forbs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
791E:					
Yamacall, calcareous	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,400	Bluebunch wheatgrass	35
		Normal	1,200	Green needlegrass	10
		Unfavorable	900	Needleandthread	10
				Western wheatgrass	10
				Canby bluegrass	10
				Winterfat	5
				Threadleaf sedge	5
				Other shrubs	5
				Other perennial forbs	5
				Other perennial grasses	5
Yamacall	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,400	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	15
				Bluebunch wheatgrass	10
				Little bluestem	10
				Other perennial forbs	5
				Plains muhly	5
792C:					
Yamacall, calcareous	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,400	Bluebunch wheatgrass	35
		Normal	1,200	Green needlegrass	10
		Unfavorable	900	Needleandthread	10
				Western wheatgrass	10
				Canby bluegrass	10
				Winterfat	5
				Threadleaf sedge	5
				Other shrubs	5
				Other perennial forbs	5
				Other perennial grasses	5
Yamacall	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,400	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	15
				Bluebunch wheatgrass	10
				Little bluestem	10
				Other perennial forbs	5
				Plains muhly	5
821D:					
Savage	Clayey, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,000	Bluebunch wheatgrass	40
		Normal	1,700	Other perennial grasses	15
		Unfavorable	1,400	Other perennial forbs	10
				Western wheatgrass	10
				Other shrubs	5
Farnuf	Silty, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, Central	Favorable	2,500	Bluebunch wheatgrass	30
		Normal	2,100	Green needlegrass	15
		Unfavorable	1,500	Western wheatgrass	10
				Other perennial forbs	10
				Needleandthread	10
				Other perennial grasses	10
				Other shrubs	10
				Blue grama	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
860C:					
Weingart--------	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass----------	25
		Normal	1,000	Green needlegrass----------	20
		Unfavorable	700	Fourwing saltbush----------	10
				Needleandthread----------	10
				Thickspike wheatgrass----------	10
				Other perennial grasses---------	10
				Other perennial forbs----------	5
				Other shrubs----------	5
				Winterfat----------	5
Weingart, thin--	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	800	Western wheatgrass----------	40
		Normal	600	Green needlegrass----------	20
		Unfavorable	400	Fourwing saltbush----------	10
				Other perennial grasses---------	10
				Thickspike wheatgrass----------	10
				Other perennial forbs----------	5
				Other shrubs----------	5
871B:					
Tamaneen--------	Clayey, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,000	Bluebunch wheatgrass----------	30
		Normal	1,700	Green needlegrass----------	20
		Unfavorable	1,400	Rough fescue----------	20
				Western wheatgrass----------	15
				Other perennial forbs----------	5
				Other perennial grasses---------	5
				Other shrubs----------	5
Danvers---------	Clayey, 15 to 19 inch Ppt zone, Northern Rocky Mountain foothills, central	Favorable	2,000	Bluebunch wheatgrass----------	30
		Normal	1,700	Rough fescue----------	20
		Unfavorable	1,400	Western wheatgrass----------	10
				Other perennial forbs----------	10
				Green needlegrass----------	10
				Idaho fescue----------	5
				Other shrubs----------	5
901A:					
Lallie----------	Wet meadow, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	5,000	Northern reedgrass----------	40
		Normal	4,000	Tufted hairgrass----------	15
		Unfavorable	3,000	Sedge----------	10
				Bearded wheatgrass----------	5
				Basin wildrye----------	5
				Other shrubs----------	5
				Other perennial forbs----------	5
				Other perennial grasses---------	5
				Prairie cordgrass----------	5
902A:					
Lostriver-------	Saline upland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	250	Western wheatgrass----------	30
		Normal	175	Alkali sacaton----------	15
		Unfavorable	100	Gardner saltbush----------	10
				Other shrubs----------	10
				Inland saltgrass----------	10
				Other perennial grasses---------	10
				Greasewood----------	10
				Other perennial forbs----------	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
902A: (cont.)					
Bullhook	Saline upland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	250	Western wheatgrass	30
		Normal	175	Alkali sacaton	15
		Unfavorable	100	Gardner saltbush	10
				Other shrubs	10
				Inland saltgrass	10
				Other perennial grasses	10
				Greasewood	10
				Other perennial forbs	5
903A:					
Harlake	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,500	Western wheatgrass	35
		Unfavorable	1,000	Silver sagebrush	5
				Snowberry	1
				Rose	1
Lostriver	Saline upland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	250	Western wheatgrass	30
		Normal	175	Alkali sacaton	15
		Unfavorable	100	Gardner saltbush	10
				Other shrubs	10
				Inland saltgrass	10
				Other perennial grasses	10
				Greasewood	10
				Other perennial forbs	5
905A:					
Harlake	Subirrigated, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	5,000	Prairie cordgrass	20
		Normal	4,000	Slender wheatgrass	15
		Unfavorable	3,500	Sedge	10
				Northern reedgrass	10
				Tufted hairgrass	10
				Buffaloberry	10
				Other perennial forbs	10
				Other perennial grasses	5
				Other annual forbs	5
Havre	Subirrigated, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	5,000	Northern reedgrass	25
		Normal	4,000	Sedge	20
		Unfavorable	3,000	Tufted hairgrass	15
				Other shrubs	10
				Other perennial grasses	10
				Slender wheatgrass	5
				Other perennial forbs	5
				Canada wildrye	5
				Prairie cordgrass	5
921D:					
Sunburst	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Green needlegrass	35
		Normal	1,100	Western wheatgrass	25
		Unfavorable	700	Other perennial forbs	10
				Porcupinegrass	10
				Silver sagebrush	5
				Bluebunch wheatgrass	5
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Green needlegrass	40
		Normal	1,200	Bluebunch wheatgrass	25
		Unfavorable	800	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
923C:					
Sunburst	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Green needlegrass	35
		Normal	1,100	Western wheatgrass	25
		Unfavorable	700	Other perennial forbs	10
				Porcupinegrass	10
				Silver sagebrush	5
				Bluebunch wheatgrass	5
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Green needlegrass	40
		Normal	1,200	Bluebunch wheatgrass	25
		Unfavorable	800	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
923F:					
Sunburst	Thin clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	20
		Normal	750	Porcupinegrass	15
		Unfavorable	500	Little bluestem	15
				Sideoats grama	10
				Green needlegrass	10
				Plains muhly	5
				Unknowns	5
				Other perennial forbs	5
				Juniper	5
				Western wheatgrass	5
				Needleandthread	1
				Silver sagebrush	1
Kevin	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Green needlegrass	40
		Normal	1,200	Bluebunch wheatgrass	25
		Unfavorable	800	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
924E:					
Sunburst	Thin clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	20
		Normal	750	Porcupinegrass	15
		Unfavorable	500	Little bluestem	15
				Sideoats grama	10
				Green needlegrass	10
				Plains muhly	5
				Unknowns	5
				Other perennial forbs	5
				Juniper	5
				Western wheatgrass	5
				Needleandthread	1
				Silver sagebrush	1
Bascovy	Thin clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,450	Bluebunch wheatgrass	25
		Normal	1,200	Western wheatgrass	20
		Unfavorable	850	Thickspike wheatgrass	15
				Green needlegrass	15
				Little bluestem	10
				Needleandthread	10

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
924E:(cont.)					
Neldore	Shallow clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5
925C:					
Sunburst	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Green needlegrass	35
		Normal	1,100	Western wheatgrass	25
		Unfavorable	700	Other perennial forbs	10
				Porcupinegrass	10
				Silver sagebrush	5
				Bluebunch wheatgrass	5
Bascovy	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,300	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	20
				Other perennial forbs	10
				Little bluestem	5
				Other perennial grasses	5
Weingart, thin	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	800	Western wheatgrass	40
		Normal	600	Green needlegrass	20
		Unfavorable	400	Fourwing saltbush	10
				Other perennial grasses	10
				Thickspike wheatgrass	10
				Other perennial forbs	5
				Other shrubs	5
926F:					
Sunburst	Thin clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	20
		Normal	750	Porcupinegrass	15
		Unfavorable	500	Little bluestem	15
				Sideoats grama	10
				Green needlegrass	10
				Plains muhly	5
				Unknowns	5
				Other perennial forbs	5
				Juniper	5
				Western wheatgrass	5
				Needleandthread	1
				Silver sagebrush	1
Neldore	Shallow clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
930A:					
Wheatbelt	Saline upland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	250	Western wheatgrass	30
		Normal	175	Alkali sacaton	15
		Unfavorable	100	Gardner saltbush	10
				Other shrubs	10
				Inland saltgrass	10
				Other perennial grasses	10
				Greasewood	10
				Other perennial forbs	5
971F:					
Neldore	Shallow clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5
Cabbart	Shallow, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Bluebunch wheatgrass	50
		Normal	900	Western wheatgrass	10
		Unfavorable	600	Needleandthread	10
				Little bluestem	10
				Juniper	5
				Skunkbush sumac	5
				Other perennial forbs	5
Tinsley	Gravel, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	35
		Normal	700	Needleandthread	15
		Unfavorable	500	Western wheatgrass	10
				Plains muhly	10
				Sand dropseed	10
				Indian ricegrass	5
				Sedge	5
				Yucca	5
1021E:					
Cabbart	Shallow, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,000	Bluebunch wheatgrass	50
		Normal	800	Needleandthread	15
		Unfavorable	600	Western wheatgrass	10
				Juniper	5
				Skunkbush sumac	5
				Plains muhly	5
				Other perennial forbs	5
				Sideoats grama	1
Twilight	Thin sandy, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,300	Prairie sandreed	25
		Normal	1,000	Little bluestem	25
		Unfavorable	800	Big bluestem	10
				Needleandthread	10
				Plains muhly	5
				Sedge	5
				Other perennial forbs	5
				Skunkbush sumac	5
				Bluebunch wheatgrass	5
Yawdim	Shallow clay, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,200	Western wheatgrass	40
		Normal	1,000	Bluebunch wheatgrass	20
		Unfavorable	700	Green needlegrass	20
				Big sagebrush	5
				Other perennial forbs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1022F:					
Hillon	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,450	Bluebunch wheatgrass	35
		Normal	1,200	Green needlegrass	20
		Unfavorable	850	Western wheatgrass	10
				Little bluestem	10
				Thickspike wheatgrass	10
				Needleandthread	10
Cabbart	Shallow, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Bluebunch wheatgrass	50
		Normal	900	Western wheatgrass	10
		Unfavorable	600	Needleandthread	10
				Little bluestem	10
				Juniper	5
				Skunkbush sumac	5
				Other perennial forbs	5
1030D:					
Marvan	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,600	Western wheatgrass	30
		Normal	1,100	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Big sagebrush	5
				Other perennial forbs	5
Gerdrum	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Other perennial grasses	15
		Unfavorable	500	Green needlegrass	15
				Needleandthread	10
				Big sagebrush	5
				Alkali sacaton	5
				Other perennial forbs	5
1037D:					
Evanston	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	20
		Normal	1,500	Green needlegrass	20
		Unfavorable	1,000	Little bluestem	10
				Bluebunch wheatgrass	10
				Other perennial forbs	10
				Needleandthread	10
				Silver sagebrush	5
				Other shrubs	5
				Other perennial grasses	5
				Lomatium	1
Yamacall	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	30
		Normal	1,400	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	15
				Bluebunch wheatgrass	10
				Little bluestem	10
				Other perennial forbs	5
				Plains muhly	5
1052B:					
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1052B:(cont.)					
Thoeny----------	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Western wheatgrass----------	45
		Normal	1,200	Green needlegrass----------	10
		Unfavorable	800	Needleandthread----------	10
				Other perennial forbs----------	10
				Sandberg bluegrass----------	5
				Silver sagebrush----------	5
1059E:					
Weingart--------	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass----------	25
		Normal	1,000	Green needlegrass----------	20
		Unfavorable	700	Fourwing saltbush----------	10
				Needleandthread----------	10
				Thickspike wheatgrass----------	10
				Other perennial grasses----------	10
				Other perennial forbs----------	5
				Other shrubs----------	5
				Winterfat----------	5
Vaeda----------	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	800	Western wheatgrass----------	45
		Normal	400	Fourwing saltbush----------	15
		Unfavorable	250	Green needlegrass----------	10
				Other annual forbs----------	5
				Saltgrass----------	5
				Big sagebrush----------	5
				Sandberg bluegrass----------	5
				Other perennial forbs----------	5
				Other perennial grasses----------	5
				Greasewood----------	5
Bascovy---------	Thin clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass----------	30
		Normal	1,300	Green needlegrass----------	30
		Unfavorable	900	Bluebunch wheatgrass----------	20
				Other perennial forbs----------	10
				Little bluestem----------	5
				Other perennial grasses----------	5
1066D:					
Twilight--------	Sandy, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,700	Prairie sandreed----------	35
		Normal	1,400	Little bluestem----------	20
		Unfavorable	1,100	Needleandthread----------	15
				Bluebunch wheatgrass----------	5
				Indian ricegrass----------	5
				Big bluestem----------	5
				Other perennial forbs----------	5
				Western wheatgrass----------	5
Cabbart---------	Shallow, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,000	Bluebunch wheatgrass----------	50
		Normal	800	Needleandthread----------	15
		Unfavorable	600	Western wheatgrass----------	10
				Juniper----------	5
				Skunkbush sumac----------	5
				Plains muhly----------	5
				Other perennial forbs----------	5
				Sideoats grama----------	1

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1066D: (cont.)					
Marmarth	Silty, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,800	Western wheatgrass	20
		Normal	1,400	Bluebunch wheatgrass	20
		Unfavorable	900	Other perennial grasses	10
				Needleandthread	10
				Big sagebrush	5
				Threadleaf sedge	5
				Green needlegrass	5
				Plains muhly	5
				Other perennial forbs	5
				Milkvetch	5
				Other shrubs	5
				Sideoats grama	5
1090B:					
Harlake	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,500	Western wheatgrass	35
		Unfavorable	1,000	Silver sagebrush	5
				Snowberry	1
				Rose	1
Marvan	Clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,600	Western wheatgrass	30
		Normal	1,100	Green needlegrass	30
		Unfavorable	900	Bluebunch wheatgrass	25
				Big sagebrush	5
				Other perennial forbs	5
1221F:					
Hillon	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,450	Bluebunch wheatgrass	35
		Normal	1,200	Green needlegrass	20
		Unfavorable	850	Western wheatgrass	10
				Little bluestem	10
				Thickspike wheatgrass	10
				Needleandthread	10
Kevin	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,400	Bluebunch wheatgrass	50
		Normal	1,000	Western wheatgrass	20
		Unfavorable	700	Green needlegrass	20
				Other perennial forbs	10
1251E:					
Neldore	Shallow clay, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5
Bascovy	Thin clayey, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,450	Bluebunch wheatgrass	25
		Normal	1,200	Western wheatgrass	20
		Unfavorable	850	Thickspike wheatgrass	15
				Green needlegrass	15
				Little bluestem	10
				Needleandthread	10

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1261B:					
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
Nobe	Saline upland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	200	Western wheatgrass	25
		Normal	150	Alkali sacaton	25
		Unfavorable	75	Greasewood	15
				Fourwing saltbush	15
				Inland saltgrass	10
				Alkaligrass	5
1262A:					
Toston	Saline lowland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	3,600	Alkali sacaton	30
		Normal	2,800	Basin wildrye	15
		Unfavorable	2,100	Greasewood	15
				Inland saltgrass	10
				Alkali cordgrass	10
				Western wheatgrass	10
				Sedge	5
				Alkaligrass	5
Nobe	Saline lowland, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	900	Nuttall alkaligrass	15
		Unfavorable	700	Alkali cordgrass	10
				Greasewood	10
				Alkali sacaton	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Sedge	5
				Slender wheatgrass	5
				Inland saltgrass	5
1332C:					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1332C:(cont.)					
Thoeny	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Western wheatgrass	45
		Normal	1,200	Green needlegrass	10
		Unfavorable	800	Needleandthread	10
				Other perennial forbs	10
				Sandberg bluegrass	5
				Silver sagebrush	5
1333C:					
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Green needlegrass	40
		Normal	1,300	Bluebunch wheatgrass	25
		Unfavorable	900	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
Elloam	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3
1373C:					
Evanston	Silty, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,900	Western wheatgrass	20
		Normal	1,500	Green needlegrass	20
		Unfavorable	1,000	Little bluestem	10
				Bluebunch wheatgrass	10
				Other perennial forbs	10
				Needleandthread	10
				Silver sagebrush	5
				Other shrubs	5
				Other perennial grasses	5
				Lomatium	1
Chinook	Sandy, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,800	Prairie sandreed	35
		Normal	1,400	Needleandthread	20
		Unfavorable	1,000	Little bluestem	10
				Western wheatgrass	5
				Other perennial forbs	5
				Yucca	5
				Big bluestem	5
				Sand dropseed	5
				Indian ricegrass	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1373C:(cont.)					
Marmarth	Silty, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,800	Western wheatgrass	20
		Normal	1,400	Bluebunch wheatgrass	20
		Unfavorable	900	Other perennial grasses	10
				Needleandthread	10
				Big sagebrush	5
				Threadleaf sedge	5
				Green needlegrass	5
				Plains muhly	5
				Other perennial forbs	5
				Milkvetch	5
				Other shrubs	5
				Sideoats grama	5
1392B:					
Creed	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,500	Western wheatgrass	45
		Normal	1,200	Green needlegrass	15
		Unfavorable	800	Winterfat	10
				Threadleaf sedge	5
				Big sagebrush	5
				Bluebunch wheatgrass	5
				Other perennial forbs	5
				Other perennial grasses	5
Gerdrum	Claypan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Other perennial grasses	15
		Unfavorable	500	Green needlegrass	15
				Needleandthread	10
				Big sagebrush	5
				Alkali sacaton	5
				Other perennial forbs	5
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
1441D:					
Kevin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Green needlegrass	40
		Normal	1,200	Bluebunch wheatgrass	25
		Unfavorable	800	Western wheatgrass	25
				Other perennial forbs	5
				Other shrubs	5
Scobey	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Green needlegrass	20
				Needleandthread	20
				Other shrubs	5
				Other perennial forbs	5

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1441D:(cont.)					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
1443E:					
Kevin	Thin silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,400	Bluebunch wheatgrass	50
		Normal	1,000	Western wheatgrass	20
		Unfavorable	700	Green needlegrass	20
				Other perennial forbs	10
Scobey	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Bluebunch wheatgrass	30
		Normal	1,500	Western wheatgrass	20
		Unfavorable	1,000	Green needlegrass	20
				Needleandthread	20
				Other shrubs	5
				Other perennial forbs	5
Nishon	Overflow, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	3,000	Western wheatgrass	30
		Normal	2,500	Basin wildrye	25
		Unfavorable	2,000	Green needlegrass	20
				Sedge	10
				Other perennial forbs	5
				Slender wheatgrass	5
				Other perennial grasses	5
1503D:					
Telstad	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,800	Western wheatgrass	45
		Normal	1,300	Green needlegrass	20
		Unfavorable	900	Needleandthread	15
				Other perennial grasses	10
				Other perennial forbs	5
				Winterfat	5
Joplin	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,700	Western wheatgrass	25
		Normal	1,400	Bluebunch wheatgrass	20
		Unfavorable	1,000	Needleandthread	20
				Other perennial forbs	10
				Green needlegrass	10
				Other shrubs	5
				Silver sagebrush	5
				Other perennial grasses	5
1523C:					
Elloam	Clay pan, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,200	Western wheatgrass	35
		Normal	900	Green needlegrass	15
		Unfavorable	500	Needleandthread	10
				Alkali sacaton	10
				Other perennial forbs	5
				Big sagebrush	5
				Other perennial grasses	5
				Montana wheatgrass	5
				Winterfat	3

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1523C:(cont.)					
Phillips	Silty, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,900	Western wheatgrass	30
		Normal	1,500	Needleandthread	15
		Unfavorable	1,000	Green needlegrass	10
				Other perennial forbs	10
				Bluebunch wheatgrass	5
				Sandberg bluegrass	5
				Silver sagebrush	5
				Blue grama	5
				Other perennial grasses	5
				Prairie junegrass	5
				Porcupinegrass	5
Absher	Dense clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	900	Western wheatgrass	45
		Normal	600	Green needlegrass	20
		Unfavorable	400	Plains reedgrass	10
				Fourwing saltbush	5
				Other perennial forbs	5
				Big sagebrush	5
				Bottlebrush squirreltail	5
1920F:					
Sunburst	Thin clayey, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,000	Bluebunch wheatgrass	20
		Normal	750	Porcupinegrass	15
		Unfavorable	500	Little bluestem	15
				Sideoats grama	10
				Green needlegrass	10
				Plains muhly	5
				Unknowns	5
				Other perennial forbs	5
				Juniper	5
				Western wheatgrass	5
				Needleandthread	1
				Silver sagebrush	1
Neldore	Shallow clay, 10 to 14 inch Ppt zone, glaciated plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5
1970F:					
Neldore	Shallow clay, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,100	Western wheatgrass	30
		Normal	800	Green needlegrass	25
		Unfavorable	600	Thickspike wheatgrass	10
				Plains muhly	10
				Big sagebrush	10
				Little bluestem	10
				Other perennial grasses	5
Bascovy	Thin clayey, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,450	Bluebunch wheatgrass	25
		Normal	1,200	Western wheatgrass	20
		Unfavorable	850	Thickspike wheatgrass	15
				Green needlegrass	15
				Little bluestem	10
				Needleandthread	10

Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		*Pct*
1971F:					
Yawdim	Shallow clay, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,200	Western wheatgrass	40
		Normal	1,000	Bluebunch wheatgrass	20
		Unfavorable	700	Green needlegrass	20
				Big sagebrush	5
				Other perennial forbs	5
Cabbart	Shallow, 10 to 14 inch Ppt zone, sedimentary plains, East	Favorable	1,000	Bluebunch wheatgrass	50
		Normal	800	Needleandthread	15
		Unfavorable	600	Western wheatgrass	10
				Juniper	5
				Skunkbush sumac	5
				Plains muhly	5
				Other perennial forbs	5
				Sideoats grama	1
1972F:					
Volborg	Coarse clay, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,000	Prairie sandreed	40
		Normal	800	Sun sedge	10
		Unfavorable	400	Little bluestem	10
				Western wheatgrass	10
				Longleaf sagebrush	5
				Rubber rabbitbrush	5
				Prairie thermopsis	3
2972F:					
Volborg	Coarse clay, 10 to 14 inch Ppt zone, sedimentary plains, central	Favorable	1,000	Prairie sandreed	40
		Normal	800	Sun sedge	10
		Unfavorable	400	Little bluestem	10
				Western wheatgrass	10
				Longleaf sagebrush	5
				Rubber rabbitbrush	5
				Prairie thermopsis	3

Woodland Understory Vegetation and Habitat Types

(Only the soils that support woodland vegetation are listed. Absence of an entry indicates that data were not available.)

Map symbol and soil name	Total production		Characteristic vegetation	Composition	Representative habitat type or phase
	Kind of year	Dry weight			
		Lb/acre		*Pct*	
84F:					
Macmeal, warm----	Favorable	300	Bluebunch wheatgrass---------	40	Ponderosa pine/bluebunch
	Normal	250	Little bluestem--------------	20	wheatgrass, ponderosa
	Unfavorable	200	Arrowleaf balsamroot---------	10	pine/snowberry
			Common snowberry-------------	5	
			Skunkbush sumac--------------	5	
			Common chokecherry-----------	1	
			Saskatoon serviceberry-------	1	
Macmeal----------	Favorable	300	Pinegrass--------------------	50	Douglas-fir/snowberry,
	Normal	250	Heartleaf arnica-------------	10	Douglas-fir/white spirea,
	Unfavorable	200	Twinflower-------------------	10	Douglas-fir/common juniper
			Blue wildrye-----------------	5	
			Columbia needlegrass---------	5	
			Common chokecherry-----------	5	
			White spirea-----------------	5	
			Kinnikinnick-----------------	2	
			Common juniper---------------	1	
			Common snowberry-------------	1	
			Oregongrape------------------	1	
115F:					
Silverchief------	Favorable	500	Common snowberry-------------	15	Douglas-fir/snowberry,
	Normal	400	Bluebunch wheatgrass---------	10	Douglas-fir/white spirea
	Unfavorable	300	Elk sedge--------------------	10	
			Common chokecherry-----------	5	
			Common juniper---------------	5	
			Heartleaf arnica-------------	5	
			Pinegrass--------------------	5	
			Russet buffaloberry----------	5	
			Wartberry fairybells---------	5	
			White spirea-----------------	5	
			Arrowleaf balsamroot---------	1	
Whitecow, warm---	Favorable	400	Bluebunch wheatgrass---------	30	Ponderosa pine/bluebunch
	Normal	300	Arrowleaf balsamroot---------	10	wheatgrass, ponderosa
	Unfavorable	200	Common snowberry-------------	10	pine/snowberry
			Columbia needlegrass---------	9	
			Idaho fescue-----------------	5	
			Juniper----------------------	5	
			Skunkbush sumac--------------	5	
			Heartleaf arnica-------------	2	
Macmeal----------	Favorable	300	Pinegrass--------------------	50	Douglas-fir/snowberry,
	Normal	250	Common snowberry-------------	10	Douglas-fir/white spirea,
	Unfavorable	200	Heartleaf arnica-------------	10	Douglas-fir/common juniper
			Blue wildrye-----------------	5	
			Columbia needlegrass---------	5	
			Common chokecherry-----------	5	
			Common juniper---------------	5	
			White spirea-----------------	5	
			Kinnikinnick-----------------	2	
			Oregongrape------------------	1	
			Twinflower-------------------	1	

Woodland Understory Vegetation and Habitat Types--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition	Representative habitat type or phase
	Kind of year	Dry weight			
		Lb/acre		*Pct*	
120F:					
Mocmont, cool----	Favorable	400	Common chokecherry----------	10	Douglas-fir/snowberry,
	Normal	300	Common juniper----------	10	Douglas-fir/white spirea,
	Unfavorable	200	Common snowberry----------	10	lodgepole pine/twinflower
			White spirea----------	10	
			Heartleaf arnica----------	5	
			Kinnikinnick----------	5	
			Russet buffaloberry----------	5	
			Twinflower----------	2	
Mocmont----------	Favorable	400	Bluebunch wheatgrass---------	30	Ponderosa pine/bluebunch
	Normal	300	Arrowleaf balsamroot---------	10	wheatgrass, ponderosa
	Unfavorable	200	Common chokecherry----------	5	pine/chokecherry,
			Common juniper----------	5	Douglas-fir/common juniper
			White spirea----------	5	
			Kinnikinnick----------	2	
121F:					
Mocmont----------	Favorable	400	Bluebunch wheatgrass---------	30	Ponderosa pine/bluebunch
	Normal	300	Arrowleaf balsamroot---------	10	wheatgrass, ponderosa
	Unfavorable	200	Common chokecherry----------	5	pine/chokecherry,
			Common juniper----------	5	Douglas-fir/common juniper
			White spirea----------	5	
			Kinnikinnick----------	2	
Mocmont, cool----	Favorable	400	Common chokecherry----------	10	Douglas-fir/snowberry,
	Normal	300	Common juniper----------	10	Douglas-fir/white spirea,
	Unfavorable	200	Common snowberry----------	10	lodgepole pine/twinflower
			White spirea----------	10	
			Heartleaf arnica----------	5	
			Kinnikinnick----------	5	
			Russet buffaloberry----------	5	
			Twinflower----------	2	
Tolex----------	Favorable	250	Common snowberry----------	15	Douglas-fir/snowberry,
	Normal	200	White spirea----------	15	Douglas-fir/common juniper
	Unfavorable	100	Common chokecherry----------	10	
			Russet buffaloberry----------	10	
			Common juniper----------	5	
122F:					
Mocmont, cool----	Favorable	400	Common chokecherry----------	10	Douglas-fir/snowberry,
	Normal	300	Common juniper----------	10	Douglas-fir/white spirea,
	Unfavorable	200	Common snowberry----------	10	lodgepole pine/twinflower
			Juniper----------	10	
			White spirea----------	10	
			Kinnikinnick----------	5	
			Russet buffaloberry----------	5	
			Heartleaf arnica----------	2	
			Twinflower----------	2	

Woodland Understory Vegetation and Habitat Types--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition	Representative habitat type or phase
	Kind of year	Dry weight			
		Lb/acre		*Pct*	
122F:(cont.)					
Landusky	Favorable	250	Bluebunch wheatgrass	10	Douglas-fir/snowberry,
	Normal	200	Common chokecherry	10	Douglas-fir/white spirea,
	Unfavorable	150	Common snowberry	10	lodgepole pine/twinflower
			Unnamed perennial forbs	10	
			Unnamed shrubs	10	
			White spirea	10	
			Common juniper	5	
			Idaho fescue	5	
			Kinnikinnick	5	
			Rose	5	
			Twinflower	2	
130F:					
Mocmont, cool	Favorable	400	Common chokecherry	10	Douglas-fir/snowberry,
	Normal	300	Common juniper	10	Douglas-fir/white spirea,
	Unfavorable	200	Common snowberry	10	lodgepole pine/twinflower
			Juniper	10	
			White spirea	10	
			Kinnikinnick	5	
			Russet buffaloberry	5	
			Heartleaf arnica	2	
			Twinflower	2	
139F:					
Whitecow, warm	Favorable	400	Bluebunch wheatgrass	30	Ponderosa pine/bluebunch
	Normal	300	Arrowleaf balsamroot	10	wheatgrass, ponderosa
	Unfavorable	200	Common snowberry	10	pine/snowberry
			Columbia needlegrass	9	
			Idaho fescue	5	
			Juniper	5	
			Skunkbush sumac	5	
			Heartleaf arnica	2	
Warneke	Favorable	300	Bluebunch wheatgrass	50	Ponderosa pine/bluebunch
	Normal	200	Arrowleaf balsamroot	30	wheatgrass
	Unfavorable	100	Common snowberry	5	
			Idaho fescue	1	
			Rough fescue	1	
			Saskatoon serviceberry	1	
140F:					
Whitecow	Favorable	400	Juniper	20	Douglas-fir/snowberry,
	Normal	300	Arrowleaf balsamroot	10	Douglas-fir/white spirea,
	Unfavorable	200	Common snowberry	10	Douglas-fir/common juniper
			Engelmann aster	10	
			Skunkbush sumac	7	
			Whortleleaf snowberry	6	
			Bluebunch wheatgrass	5	
			Columbia needlegrass	5	
			Idaho fescue	5	
			Oregongrape	5	
			White spirea	5	
			Woods rose	4	
			Heartleaf arnica	3	

Woodland Understory Vegetation and Habitat Types--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition	Representative habitat type or phase
	Kind of year	Dry weight			
		Lb/acre		*Pct*	
140F:(cont.)					
Whitecow, warm---	Favorable	400	Bluebunch wheatgrass	30	Ponderosa pine/bluebunch
	Normal	300	Arrowleaf balsamroot	10	wheatgrass, ponderosa
	Unfavorable	200	Common snowberry	10	pine/snowberry
			Columbia needlegrass	9	
			Idaho fescue	5	
			Juniper	5	
			Skunkbush sumac	5	
			Heartleaf arnica	2	
151F:					
Warneke	Favorable	300	Bluebunch wheatgrass	50	Ponderosa pine/bluebunch
	Normal	200	Arrowleaf balsamroot	30	wheatgrass
	Unfavorable	100	Common snowberry	5	
			Idaho fescue	1	
			Rough fescue	1	
			Saskatoon serviceberry	1	
Whitecow, warm---	Favorable	400	Bluebunch wheatgrass	30	Ponderosa pine/bluebunch
	Normal	300	Arrowleaf balsamroot	10	wheatgrass, ponderosa
	Unfavorable	200	Common snowberry	10	pine/snowberry
			Columbia needlegrass	9	
			Idaho fescue	5	
			Juniper	5	
			Skunkbush sumac	5	
			Heartleaf arnica	2	
160D:					
Whitecow, warm---	Favorable	400	Bluebunch wheatgrass	30	Ponderosa pine/bluebunch
	Normal	300	Arrowleaf balsamroot	10	wheatgrass
	Unfavorable	200	Common snowberry	10	
			Columbia needlegrass	9	
			Idaho fescue	5	
			Juniper	5	
			Skunkbush sumac	5	
			Heartleaf arnica	2	
160E:					
Whitecow, warm---	Favorable	400	Bluebunch wheatgrass	30	Ponderosa pine/bluebunch
	Normal	300	Arrowleaf balsamroot	10	wheatgrass
	Unfavorable	200	Common snowberry	10	
			Columbia needlegrass	9	
			Idaho fescue	5	
			Juniper	5	
			Skunkbush sumac	5	
			Heartleaf arnica	2	
190B:					
Nesda, cool---	Favorable	600	Shrubby cinquefoil	25	---
	Normal	500	Richardson needlegrass	20	
	Unfavorable	400	Snowberry	15	
			Common chokecherry	5	
			Silverberry	5	

Woodland Understory Vegetation and Habitat Types--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition	Representative habitat type or phase
	Kind of year	Dry weight			
		Lb/acre		*Pct*	
811A:					
Glendive	Favorable	2,000	Western wheatgrass	20	---
	Normal	1,500	Green needlegrass	15	
	Unfavorable	900	American licorice	5	
			Poison ivy	5	
			Prairie junegrass	5	
			Rose	5	
			Saskatoon serviceberry	5	
			Thickspike wheatgrass	5	
Havre	Favorable	800	Western wheatgrass	20	---
	Normal	600	Common snowberry	15	
	Unfavorable	400	Green needlegrass	15	
			American licorice	5	
			Poison ivy	5	
			Prairie junegrass	5	
			Rose	5	
			Saskatoon serviceberry	5	
973E:					
Neldore, cool	Favorable	750	Bluebunch wheatgrass	70	---
	Normal	650	Threadleaf sedge	5	
	Unfavorable	550	Western yarrow	5	
			Ponderosa pine	2	
			Rocky Mountain juniper	2	
			Skunkbush sumac	2	
974F:					
Pinebreaks	Favorable	600	Bluebunch wheatgrass	50	---
	Normal	500	Rocky Mountain juniper	10	
	Unfavorable	400	Threadleaf sedge	10	
			Western snowberry	10	
			Dandelion hawksbeard	5	
			Ponderosa pine	5	
			Western yarrow	5	
			Wax currant	2	
Neldore	Favorable	250	Western wheatgrass	40	---
	Normal	200	Bluebunch wheatgrass	5	
	Unfavorable	150	Obtuse sedge	5	
			Rocky Mountain juniper	2	
			Skunkbush sumac	2	
1850F:					
Cabbart	Favorable	800	Bluebunch wheatgrass	25	---
	Normal	600	Little bluestem	15	
	Unfavorable	400	Green needlegrass	10	
			Sideoats grama	10	
			Unnamed perennial forbs	10	
			Common snowberry	5	
			Juniper	5	
			Needleandthread	5	
			Skunkbush sumac	5	
			Western wheatgrass	5	
			Unnamed shrubs	1	

Woodland Understory Vegetation and Habitat Types--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition	Representative habitat type or phase
	Kind of year	Dry weight			
		Lb/acre		*Pct*	
1850F:(cont.)					
Twilight---------	Favorable	1,200	Prairie sandreed----------	25	---
	Normal	900	Bluebunch wheatgrass---------	20	
	Unfavorable	700	Needleandthread----------	10	
			Common chokecherry----------	5	
			Common juniper----------	5	
			Common snowberry----------	5	
			Green needlegrass----------	5	
			Indian ricegrass----------	5	
			Plains muhly----------	5	
			Skunkbush sumac----------	5	
			Unnamed perennial forbs------	5	
			Unnamed shrubs----------	5	
			Western wheatgrass----------	5	
Delpoint---------	Favorable	700	Unnamed perennial forbs------	20	---
	Normal	600	Big bluestem----------	15	
	Unfavorable	500	Bluebunch wheatgrass---------	10	
			Green needlegrass----------	10	
			Little bluestem----------	10	
			Common chokecherry----------	5	
			Common snowberry----------	5	
			Juniper----------	5	
			Sideoats grama----------	5	
			Skunkbush sumac----------	5	
			Western wheatgrass----------	5	
1973F:					
Neldore, cool----	Favorable	750	Bluebunch wheatgrass---------	70	---
	Normal	650	Threadleaf sedge----------	5	
	Unfavorable	550	Western yarrow----------	5	
			Ponderosa pine----------	2	
			Rocky Mountain juniper-------	2	
			Skunkbush sumac----------	2	
Neldore----------	Favorable	250	Western wheatgrass----------	40	---
	Normal	200	Bluebunch wheatgrass---------	5	
	Unfavorable	150	Obtuse sedge----------	5	
			Rocky Mountain juniper-------	2	
			Skunkbush sumac----------	2	
1976F:					
Neldore----------	Favorable	250	Western wheatgrass----------	40	---
	Normal	200	Bluebunch wheatgrass---------	5	
	Unfavorable	150	Obtuse sedge----------	5	
			Rocky Mountain juniper-------	2	
			Skunkbush sumac----------	2	
Pinebreaks-------	Favorable	600	Bluebunch wheatgrass---------	50	---
	Normal	500	Rocky Mountain juniper-------	10	
	Unfavorable	400	Threadleaf sedge----------	10	
			Western snowberry----------	10	
			Dandelion hawksbeard---------	5	
			Ponderosa pine----------	5	
			Western yarrow----------	5	
			Wax currant----------	2	

Woodland Understory Vegetation and Habitat Types--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition	Representative habitat type or phase
	Kind of year	Dry weight			
		Lb/acre		*Pct*	
1977F:					
Volborg----------	Favorable	500	Prairie sandreed----------	20	---
	Normal	350	Obtuse sedge----------	15	
	Unfavorable	200	Little bluestem----------	10	
			Thickspike wheatgrass--------	10	
			Western wheatgrass----------	10	
			Prairie thermopsis----------	3	
			Creeping juniper----------	2	
			Longleaf sagebrush----------	2	
Pinebreaks-------	Favorable	600	Bluebunch wheatgrass---------	50	---
	Normal	500	Rocky Mountain juniper-------	10	
	Unfavorable	400	Threadleaf sedge----------	10	
			Western snowberry----------	10	
			Dandelion hawksbeard---------	5	
			Ponderosa pine----------	5	
			Western yarrow----------	5	
			Wax currant----------	2	
2972F:					
Neldore----------	Favorable	250	Western wheatgrass----------	40	---
	Normal	200	Bluebunch wheatgrass---------	5	
	Unfavorable	150	Obtuse sedge----------	5	
			Rocky Mountain juniper-------	2	
			Skunkbush sumac----------	2	

Forest Land

About 3 percent, or 80,000 acres of the survey area is forest land. Of this amount about 25 percent is considered commercial forest land, capable of producing 20 cubic feet or more of wood per acre per year, when yields are computed at the culmination of mean annual increment (CMAI). The commercial forest land is generally of low productivity, producing about 45 to 55 cubic feet per acre per year. The low production potential of the area, the small acreage in forest land, the young age (generally less than 100 years) of the forests, and the small tree diameters, limit the sawtimber volume available. Consequently, limited harvesting of the timber resource has or is occurring. Forest land in the county is protected from fire by the Department of State Lands Division of Forestry, U.S. Forest Service, and local fire districts.

Soils vary in their ability to support the growth of trees. Depth, fertility, texture, and the available water capacity influence tree growth. Elevation, aspect, soils, and climate determine the kinds of trees that can be expected on any site and their growth rate. The forest land soils in the survey area range from shallow to very deep, from nongravelly to extremely gravelly, and from fine-textured to coarse-textured. Because of differences among the soils, as well as differences in climate, topography, and geology, the forest lands vary in composition and productivity.

The majority of commercial coniferous forest land is in the Little Rocky Mountains in the southwestern part of the survey area. The Little Rocky Mountains have mixed stands of forest cover due to changes in climate, different aspects, and because the area was burned over in 1936. Ponderosa pine is the main cover type on elevations of 3,800 feet to 5,000 feet, and are generally on south- and west-facing slopes. Common understory species are bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, common chokecherry, and common juniper. Associated soils are the warm phases of the Whitecow, Macmeal, and Mocmont series. Lodgepole pine is the main cover type on elevations of 4,200 feet to 5,600 feet. Common understory species are white spirea, common snowberry, kinnikinnick, and russet buffaloberry. Associated soils are the Tolex and Landusky series and the cool phases of Whitecow, Macmeal, and Mocmont.

Narrowleaf cottonwood and black cottonwood are on small acreages of the Nesda soil, on narrow flood plains in the Little Rocky Mountains. Other common trees include quaking aspen, peachleaf willow, and box elder. Common understory species are common chokecherry, Saskatoon serviceberry, red dogwood, and rose. Ponderosa pine and Douglas-fir are at higher elevations on some of these sites.

The Missouri River Breaks in the southern part of the survey area have stands of ponderosa pine and some Douglas-fir. Ponderosa pine may occur on all aspects, however, stands on the warmer south and west aspects are sparse, with canopy coverage generally less than 20 percent. Common understory species on these warmer aspects include western wheatgrass, bluebunch wheatgrass, prairie sandreed, little bluestem, and obtuse sedge. Associated soils are south phases of the Neldore and Volborg series. The cooler north and east aspects have denser stands of ponderosa pine and Douglas-fir. Common understory species include bluebunch wheatgrass, skunkbush sumac, Rocky Mountain juniper, and snowberry. Mixed stands with Douglas-fir are associated with the Pinebreaks series. The moist phase of the Neldore series is associated with ponderosa pine stands on cooler aspects.

Larb Hills, in the southeastern part of the survey area, have stands of ponderosa pine that are associated with phases of the Cabbart, Twilight, and Delpoint series. Common understory plants include bluebunch wheatgrass, green needlegrass, little bluestem, needleandthread, snowberry, and skunkbush sumac. Douglas-fir is a minor component on some north aspects.

Forest land on sedimentary uplands in the southern part of the survey area are not considered to be of commercial value because of the slow growth rate and poor quality of the wood. They do have value

for posts and poles, and some individual trees are suitable for saw logs. They also provide watershed protection and important habitat for deer, elk, and other wildlife.

Plains cottonwood are on some areas of Havre and Glendive soils along the Milk River and Missouri River. The stands, of mixed age and size, have little commercial value but provide wildlife habitat and streambank protection.

To aid those managing forest land in the county, soil interpretations relating to forest land use and management have been developed. Items considered for interpretation are site index, erosion hazard, equipment limitations, plant competition, seedling mortality, windthrow hazard, species suitability and yield, and kinds and amounts of understory plants.

The tables "Forest Land Management" and "Forest Land Productivity" can be used by forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Woodland Ordination System

The table "Forest Land Management" lists the ordination (woodland suitability) symbol for each soil. The ordination system is a nationwide uniform system of labeling soils or groups of soils that are similar in use and management. The primary factors evaluated in the woodland ordination system are productivity of the forest overstory tree species and the principal soil properties resulting in hazards and limitations that affect forest management. There are three parts of the ordination system—class, subclass, and group. The class and subclass are referred to as the ordination symbol.

Ordination Class Symbol

The first element of the ordination symbol is a number that denotes potential productivity in terms of cubic meters of wood per hectare per year for the indicator tree species. The larger the number, the greater the potential productivity. Potential productivity is based on site index and the corresponding culmination of mean annual increment. For example, the number 1 indicates a potential production of 1 cubic meter of wood per hectare per year (14.3 cubic feet per acre per year) and 10 indicates a potential production of 10 cubic meters of wood per hectare per year (143 cubic feet per acre per year).

Indicator species is a species that is common in the area and is generally, but not necessarily, the most productive on the soil. It is the species that determines the ordination class. The table "Forest Land Productivity" shows the productivity for all species where data have been collected.

Site index is determined by taking height measurements and determining the age of selected trees within stands of a given species (Alexander, 1966). This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The site indexes shown in the table "Forest Land Productivity" are averages based on measurements made at sites that are representative of the soil series. When the site index and forest land productivity of different soils are compared, the values for the same tree species should be compared (Dahms, 1964). The higher the site index number, the more productive the soil for that species. Site index values are used in conjunction with yield tables (Myers, 1966) to determine average annual yields. Indirectly, they are used to determine the productivity class in the ordination class symbol.

Ordination Subclass Symbol

The second element of the ordination symbol, or subclass, is a capital letter that indicates certain soil or physiographic characteristics that contribute to important hazards or limitations to be considered in management. The subclasses are defined as follows:

Subclass X indicates that forest land use and management are limited by stones or rocks.

Subclass W indicates that forest land use and management are significantly limited by excess water, either seasonally or throughout the year. Restricted drainage, a high water table, or flooding can adversely affect either stand development or management.

Subclass T indicates that the root zone has toxic substances. Excessive alkalinity, acidity, sodium salts, or other toxic substances impede the development of desirable species.

Subclass D indicates that forest land use and management are limited by a restricted rooting depth. The rooting depth is restricted by hard bedrock, a hardpan, or other restrictive layers in the soil.

Subclass C indicates that forest land use and management are limited by the kind or amount of clay in the upper part of the soil.

Subclass S indicates that the soil is sandy, has a low available water capacity, and normally has a low content of available plant nutrients. The use of equipment is limited during dry periods.

Subclass F indicates that forest land use and management are limited by a high content of rock fragments that are larger than 2 millimeters and smaller than 10 inches. This subclass includes flaggy soils.

Subclass R indicates that forest land use and management are limited by excessive slope.

Subclass A indicates that no significant limitations affect forest land use and management.

Forest Land Management and Productivity

Information about the productivity and management of the forested map units in the survey area is given in the tables "Forest Land Management" and "Forest Land Productivity."

Management Concerns

In the table "Forest Land Management," the soils are rated for the erosion hazard, the equipment limitation, seedling mortality, the windthrow hazard, and plant competition.

The *erosion hazard* is *slight* if the expected soil loss is small; *moderate* if some measures are needed to control erosion during logging and road construction; and *severe* if intensive management or special equipment and methods are needed to prevent excessive soil loss.

The *equipment limitation* is *slight* if the use of equipment is not limited to a particular kind of equipment or time of year; *moderate* if there is a short seasonal limitation or a need for some modification in the management of equipment; and *severe* if there is a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings are for seedlings that are from a good planting stock and that are properly planted during a period of average rainfall. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *windthrow hazard* is *slight* if trees in wooded areas are not expected to be blown down by commonly occurring winds; *moderate* if some trees are blown down during periods of excessive soil wetness and strong winds; and *severe* if many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

Plant competition is *slight* if there is little or no competition from other plants; *moderate* if plant competition is expected to hinder the development of a fully stocked stand of desirable trees; and *severe* if plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

Potential Productivity

The potential productivity of merchantable or *common trees* is expressed as a site index, which is described under the heading "Ordination Class Symbol." Commonly grown trees are those that forest land managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The column *trees that stands are commonly managed for* in the table "Forest Land Productivity" lists trees that are suitable for commercial wood production and that are suited to the soils.

Forest Access Road Limitations and Hazards

The major management concerns affecting the use of the detailed soil map units in the survey area for forest access roads are listed in the table "Main Forest Access Road Limitations and Hazards." The significance of each limitation or hazard and the criteria used to determine the limitation or hazard are described in this section.

Areas of rock outcrop and *depth to bedrock* can increase the cost of road construction and influence route planning. Constructing the roads is difficult because of the need for rock removal and for additional soil material to provide a suitable road surface.

Boulders increase the cost of road construction and influence route planning. Construction is difficult mainly because of the need for extraction and disposal of the boulders.

Dustiness of the road surface material may cause safety problems and accelerate equipment wear. Dust-abatement measures are needed during dry periods.

Flooding in the area where a road is constructed may restrict use, result in damage to the roadway, and result in the sedimentation of waterways. The hazard of flooding can be reduced by installing a drainage system, elevating the roadbed, and using riprap and diversions.

Low soil strength of the soil material used to construct the road surface can result in rutting, in drainage problems, and in poor trafficability during wet periods. The road should be used only during dry periods or when the surface is frozen. Surfacing with

material of suitable strength and installing a drainage system can help to overcome this limitation.

Roadbed material that has a high *shrink-swell potential* shrinks and swells markedly during dry and wet periods. Excessive shrinking and swelling can damage the road surface or other features, such as bridge abutments, culverts, and erosion-control structures.

A steep *slope* results in increased construction and maintenance costs and increased sedimentation because of the large cuts necessary to create an adequate roadbed. Seeding the cut slope to suitable vegetation minimizes sedimentation. Large cuts can increase instability of the slope. Where slumping is a hazard, slope failure can become a significant maintenance and environmental problem. Areas where the slope is steep should not be used as sites for roads.

Slumping causes safety problems and increases maintenance costs. Frequent clearing of slumped soil in the roadbed or rebuilding of the roadway may be needed to keep the road serviceable and drainage systems functioning.

Stones cause problems in maintaining a smooth road surface that has good trafficability. Unless the stones are removed, additions of suitable stone-free material may be needed when the road is surfaced.

The erodibility of the soil material in the roadbed influences the probability of *water erosion* resulting from the channeling of runoff in the roadway. Erosion can result in the sedimentation of streams. It can be controlled by reducing road grades and controlling runoff onto and off of the road surface through the installation of drainage measures.

Roads built across soils that have a *water table* may require substantial ballast, fabric, internal drainage systems, and other measures that maintain a road surface that has good trafficability. Construction and use of the road only during periods when the water table is not near the surface or when the road is frozen help to maintain trafficability and reduce the potential for site damage.

Following is an explanation of the criteria used to determine the limitations or hazards.

Areas of rock outcrop.—Rock outcrop is a named component of the map unit.

Areas of rubble land.—Rubble land is a named component of the map unit.

Boulders.—The terms describing the texture within a depth of 24 inches include a bouldery modifier, or the soil is a bouldery phase.

Depth to rock.—Hard bedrock is within a depth of 60 inches.

Dustiness.—The surface layer is silt, silt loam, loam, or very fine sandy loam.

Flooding.—The component of the map unit is occasionally flooded or frequently flooded.

Low soil strength.—The component of the map unit has one of the following Unified classifications within the 60-inch profile: ML, CL, MH, CH, OL, PT, or GC.

Shrink-swell potential.—The component of the map unit has a high shrink-swell potential in a layer that is at least 10 inches thick and is within 40 inches of the surface.

Slope.—The upper slope limit is more than 35 percent.

Slumping.—The component of the map unit meets the requirements for low soil strength and has slopes of more than 35 percent.

Stones.—The terms describing the texture within a depth of 24 inches include a very stony or extremely stony modifier, or the soil is a very stony or extremely stony phase.

Water erosion.—The surface K factor multiplied by the upper slope limit is more than 10.

Water table.—The component of the map unit has a water table within a depth of 60 inches.

Forest Land Management

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that data were not available.)

Map symbol and soil name	Ordination symbol	Management concerns				
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition
84F:						
Macmeal, warm---	4R	Severe	Severe	Severe	Slight	Moderate
Macmeal---	4R	Severe	Severe	Moderate	Moderate	Moderate
115F:						
Silverchief---	5R	Severe	Severe	Moderate	Moderate	Moderate
Whitecow, warm---	3R	Severe	Severe	Severe	Slight	Severe
Macmeal---	4R	Severe	Severe	Moderate	Moderate	Moderate
120F:						
Mocmont, cool---	4R	Severe	Severe	Moderate	Slight	Moderate
Mocmont---	4R	Severe	Severe	Moderate	Slight	Moderate
121F:						
Mocmont---	4R	Severe	Severe	Moderate	Slight	Moderate
Mocmont, cool---	4R	Severe	Severe	Moderate	Slight	Moderate
Tolex---	2R	Severe	Severe	Severe	Severe	Moderate
122F:						
Mocmont, cool---	4R	Severe	Severe	Severe	Slight	Moderate
Landusky---	1R	Severe	Severe	Severe	Slight	Moderate
130F:						
Mocmont, cool---	4R	Severe	Severe	Severe	Slight	Moderate
139F:						
Whitecow, warm---	3R	Severe	Severe	Severe	Slight	Severe
Warneke---	2R	Severe	Severe	Severe	Moderate	Moderate
140F:						
Whitecow---	4R	Severe	Severe	Moderate	Slight	Severe
Whitecow, warm---	3R	Severe	Severe	Severe	Slight	Severe
151F:						
Warneke---	2R	Severe	Severe	Severe	Moderate	Moderate
Whitecow, warm---	3R	Severe	Severe	Severe	Slight	Severe
160D:						
Whitecow, warm---	3A	Slight	Slight	Severe	Slight	Severe
160E:						
Whitecow, warm---	3A	Moderate	Moderate	Severe	Slight	Severe
190B:						
Nesda, cool---	1W	Moderate	Slight	Severe	Slight	Severe

Forest Land Management--Continued

Map symbol and soil name	Ordination symbol	Management concerns				
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition
811A:						
Glendive	5A	Slight	Slight	Slight	Slight	Moderate
Havre	5A	Slight	Slight	Moderate	Slight	Severe
973E:						
Neldore, cool	2R	Severe	Moderate	Severe	Slight	Severe
974F:						
Pinebreaks	3R	Severe	Severe	Moderate	Moderate	Severe
Neldore	1R	Severe	Severe	Severe	Slight	Severe
1850F:						
Cabbart	2R	Severe	Severe	Severe	Slight	Severe
Twilight	3R	Severe	Severe	Moderate	Slight	Severe
Delpoint	3R	Severe	Severe	Moderate	Slight	Severe
1973F:						
Neldore, cool	2R	Severe	Severe	Severe	Slight	Severe
Neldore	1R	Severe	Severe	Severe	Slight	Severe
1976F:						
Neldore	1R	Severe	Severe	Severe	Slight	Severe
Pinebreaks	3R	Severe	Severe	Moderate	Moderate	Severe
1977F:						
Volborg	1R	Severe	Moderate	Severe	Moderate	Moderate
Pinebreaks	3R	Severe	Severe	Moderate	Moderate	Severe
2972F:						
Neldore	1R	Severe	Severe	Severe	Slight	Severe

Forest Land Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that data were not available.)

Map symbol and soil name	Common trees	Site index	Productivity class	Board feet	Cubic feet	Trees that stands are commonly managed for--
84F:						
Macmeal, warm----	Ponderosa pine----------	62	3	138	48	Ponderosa pine
Macmeal----------	Lodgepole pine----------	68	4	205	57	Ponderosa pine,
	Ponderosa pine----------	68	4	167	53	Douglas-fir
	Douglas-fir-------------	40	4	160	52	
115F:						
Silverchief------	Ponderosa pine----------	78	5	220	65	Ponderosa pine,
	Lodgepole pine----------	74	4	251	63	Douglas-fir
	Douglas-fir-------------	45	4	196	60	
Whitecow, warm---	Ponderosa pine----------	55	3	108	42	Ponderosa pine
Macmeal----------	Lodgepole pine----------	68	4	205	57	Ponderosa pine,
	Ponderosa pine----------	68	4	167	53	Douglas-fir
	Douglas-fir-------------	40	4	160	52	
120F:						
Mocmont, cool----	Lodgepole pine----------	70	4	219	59	Ponderosa pine,
	Ponderosa pine----------	72	4	188	58	Douglas-fir
	Douglas-fir-------------	40	4	160	52	
Mocmont----------	Ponderosa pine----------	68	4	167	53	Ponderosa pine,
	Douglas-fir-------------	35	3	131	45	Douglas-fir
121F:						
Mocmont----------	Ponderosa pine----------	68	4	167	53	Ponderosa pine,
	Douglas-fir-------------	35	3	131	45	Douglas-fir
Mocmont, cool----	Lodgepole pine----------	70	4	219	59	Ponderosa pine,
	Ponderosa pine----------	72	4	188	58	Douglas-fir
	Douglas-fir-------------	40	4	160	52	
Tolex------------	Douglas-fir-------------	25	2	75	34	Douglas-fir
	Lodgepole pine----------	40	2	44	31	
122F:						
Mocmont, cool----	Lodgepole pine----------	70	4	219	59	Ponderosa pine,
	Ponderosa pine----------	72	4	188	58	Douglas-fir
	Douglas-fir-------------	40	4	160	52	
Landusky---------	Douglas-fir-------------	22	2	57	31	Douglas-fir
	Lodgepole pine----------	36	2	0	24	
130F:						
Mocmont, cool----	Lodgepole pine----------	70	4	219	59	Ponderosa pine,
	Ponderosa pine----------	72	4	188	58	Douglas-fir
	Douglas-fir-------------	40	4	160	52	
139F:						
Whitecow, warm---	Ponderosa pine----------	55	3	108	42	Ponderosa pine
Warneke----------	Ponderosa pine----------	35	2	43	25	Ponderosa pine

Forest Land Productivity--Continued

Map symbol and soil name	Common trees	Site index	Productivity class	Board feet	Cubic feet	Trees that stands are commonly managed for--
140F:						
Whitecow	Douglas-fir	41	4	167	54	Ponderosa pine,
	Ponderosa pine	61	3	133	47	Douglas-fir
Whitecow, warm	Ponderosa pine	55	3	108	42	Ponderosa pine
151F:						
Warneke	Ponderosa pine	35	2	43	25	Ponderosa pine
Whitecow, warm	Ponderosa pine	55	3	108	42	Ponderosa pine
160D:						
Whitecow, warm	Ponderosa pine	55	3	108	42	Ponderosa pine
160E:						
Whitecow, warm	Ponderosa pine	55	3	108	42	Ponderosa pine
190B:						
Nesda, cool	Black cottonwood	25	---	---	---	Narrowleaf cottonwood,
	Narrowleaf cottonwood	25	---	---	---	black cottonwood
811A:						
Glendive	Plains cottonwood	82	---	---	---	Plains cottonwood
Havre	Plains cottonwood	80	---	---	---	Plains cottonwood
973E:						
Neldore, cool	Ponderosa pine	35	2	43	25	Ponderosa pine
974F:						
Pinebreaks	Douglas-fir	30	3	105	38	Ponderosa pine,
	Ponderosa pine	40	2	60	30	Douglas-fir
Neldore	Ponderosa pine	29	---	---	---	Ponderosa pine
1850F:						
Cabbart	Ponderosa pine	35	2	43	25	Ponderosa pine
Twilight	Ponderosa pine	60	3	129	46	Ponderosa pine
Delpoint	Ponderosa pine	60	3	129	46	Ponderosa pine
1973F:						
Neldore, cool	Ponderosa pine	35	2	43	25	Ponderosa pine
Neldore	Ponderosa pine	29	---	---	---	Ponderosa pine
1976F:						
Neldore	Ponderosa pine	29	---	---	---	Ponderosa pine
Pinebreaks	Douglas-fir	30	3	105	38	Ponderosa pine,
	Ponderosa pine	40	2	60	30	Douglas-fir
1977F:						
Volborg	Ponderosa pine	29	---	---	---	Ponderosa pine
Pinebreaks	Douglas-fir	30	3	105	38	Ponderosa pine,
	Ponderosa pine	40	2	60	30	Douglas-fir
2972F:						
Neldore	Ponderosa pine	29	---	---	---	Ponderosa pine

Main Forest Access Road Limitations and Hazards

(Only map units containing a forested component are listed. See text for a description of the limitations and hazards listed in this table.)

Soil name and map symbol	Forest access road limitations or hazards
84F:	
Macmeal, warm	Low soil strength Slope Water erosion
Macmeal	Low soil strength Slope Water erosion
115F:	
Silverchief	Low soil strength Shrink-swell potential Slope Water erosion
Whitecow, warm	Low soil strength Slope Water erosion
Macmeal	Low soil strength Slope Water erosion
120F:	
Mocmont, cool	Low soil strength Slope Water erosion
Mocmont	Low soil strength Slope
121F:	
Mocmont	Low soil strength Slope
Mocmont, cool	Low soil strength Slope Water erosion
Tolex	Depth to rock Low soil strength Slope Water erosion
122F:	
Mocmont, cool	Low soil strength Slope
Landusky	Slope
130F:	
Rubble land	Nonsoil material
Mocmont, cool	Areas of rock outcrop Areas of rubble land Low soil strength Slope
Rock outcrop	Nonsoil material

Main Forest Access Road Limitations and Hazards--Continued

Soil name and map symbol	Forest access road limitations or hazards
139F:	
Whitecow, warm	Low soil strength Slope Water erosion
Warneke	Depth to rock Low soil strength Slope Water erosion
140F:	
Whitecow	Low soil strength Slope Water erosion
Whitecow, warm	Low soil strength Slope Water erosion
151F:	
Warneke	Areas of rock outcrop Depth to rock Low soil strength Slope Water erosion
Whitecow, warm	Areas of rock outcrop Low soil strength Slope Water erosion
Rock outcrop	Nonsoil material
160D:	
Whitecow, warm	Low soil strength
160E:	
Whitecow, warm	Low soil strength
190B:	
Nesda	None
Nesda, cool	Flooding
811A:	
Glendive	Low soil strength
Havre	Low soil strength
973E:	
Neldore, cool	Low soil strength Water erosion
Bascovy	Low soil strength Shrink-swell potential Water erosion
974F:	
Pinebreaks	Low soil strength Slope Water erosion

Main Forest Access Road Limitations and Hazards--Continued

Soil name and map symbol	Forest access road limitations or hazards
974F:(cont.)	
Neldore	Low soil strength Slope Water erosion
1850F:	
Cabbart	Low soil strength Slope Water erosion
Twilight	Slope
Delpoint	Low soil strength Slope Water erosion
1973F:	
Neldore, cool	Areas of rock outcrop Low soil strength Slope Water erosion
Neldore	Areas of rock outcrop Low soil strength Slope Water erosion
Rock outcrop	Nonsoil material
1976F:	
Neldore	Low soil strength Slope Water erosion
Pinebreaks	Low soil strength Slope Water erosion
Bascovy	Low soil strength Shrink swell potential Slope Water erosion
1977F:	
Volborg	Areas of rock outcrop Low soil strength Shrink-swell potential Slope Water erosion
Pinebreaks	Areas of rock outcrop Low soil strength Slope Water erosion
Rock outcrop	Nonsoil material
2972F:	
Volborg	Areas of rock outcrop Low soil strength Slope Water erosion

Main Forest Access Road Limitations and Hazards--Continued

Soil name and map symbol	Forest access road limitations or hazards
2972F:(cont.)	
Neldore	Areas of rock outcrop Low soil strength Slope Water erosion
Rock outcrop	Nonsoil material

Recreation

The soils of the survey area are rated in the table "Recreational Development" according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites, and either access to public sewer lines or the capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degrees, for recreational uses by the duration of flooding and the season when it occurs. Onsite assessment of the height, duration, intensity, and frequency of flooding is essential in planning recreational facilities.

Camp areas are tracts of land used intensively as sites for tents, trailers, and campers and for outdoor activities that accompany such sites. These areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The soils are rated on the basis of soil properties that influence the ease of developing camp areas and performance of the areas after development. Also considered are the soil properties that influence trafficability and promote the growth of vegetation after heavy use.

Picnic areas are natural or landscaped tracts of land that are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The soils are rated on the basis of soil properties that influence the cost of shaping the site, trafficability, and the growth of vegetation after development. The surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry.

Playgrounds are areas used intensively for baseball, football, or similar activities. These areas require a nearly level soil that is free of stones and that can withstand heavy foot traffic and maintain an adequate cover of vegetation. The soils are rated on the basis of soil properties that influence the cost of shaping the site, trafficability, and the growth of vegetation. Slope and stoniness are the main concerns in developing playgrounds. The surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry.

Paths and trails are areas used for hiking and horseback riding. The areas should require little or no cutting and filling during site preparation. The soils are rated on the basis of soil properties that influence trafficability and erodibility. Paths and trails should remain firm under foot traffic and not be dusty when dry.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

The interpretive ratings in this table help engineers, planners, and others to understand how soil properties influence recreational uses. Ratings for proposed uses are given in terms of limitations. Only the most restrictive features are listed. Other features may limit a specific recreational use.

The degree of soil limitation is expressed as slight, moderate, or severe.

Slight means that soil properties are favorable for the rated use. The limitations are minor and can be easily overcome. Good performance and low maintenance are expected.

Moderate means that soil properties are moderately favorable for the rated use. The limitations can be overcome or modified by special planning, design, or maintenance. During some part of the year, the expected performance may be less desirable than that of soils rated *slight.*

Severe means that soil properties are unfavorable for the rated use. Examples of limitations are slope, bedrock near the surface, flooding, and a seasonal

high water table. These limitations generally require major soil reclamation, special design, or intensive maintenance. Overcoming the limitations generally is difficult and costly.

The information in the table "Recreational Development" can be supplemented by other information in this survey, for example, interpretations for dwellings without basements and for local roads and streets in the table "Building Site Development" and interpretations for septic tank absorption fields in the table "Sanitary Facilities."

Recreational Development

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
10C:					
Barkof	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: slope, too clayey, depth to rock	Moderate: too clayey	Severe: too clayey
11B:					
Degrand	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Moderate: droughty
13B:					
Beaverton	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones, large stones, droughty
25C:					
Bascovy	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: slope, small stones, too clayey	Moderate: too clayey	Severe: too clayey
28A:					
Nishon	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding
29A:					
McKenzie	Severe: ponding, percs slowly, too clayey	Severe: ponding, too clayey, percs slowly	Severe: too clayey, ponding, percs slowly	Severe: ponding, too clayey	Severe: ponding, too clayey
30A:					
Marvan	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
31B:					
Ferd	Moderate: dusty	Moderate: dusty	Moderate: slope, dusty	Moderate: dusty	Slight
32B:					
Kobase	Slight	Slight	Moderate: slope	Slight	Slight
33B:					
Phillips	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
35C:					
Assinniboine	Slight	Slight	Moderate: slope, small stones	Slight	Slight

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
36C:					
Chinook	Slight	Slight	Moderate: slope, small stones	Slight	Slight
37B:					
Evanston	Moderate: dusty	Moderate: dusty	Moderate: slope, dusty	Moderate: dusty	Slight
37C:					
Evanston	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight
38B:					
Ethridge	Slight	Slight	Moderate: slope	Slight	Slight
38C:					
Ethridge	Slight	Slight	Severe: slope	Slight	Slight
41A:					
Vaeda	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: small stones, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
43A:					
Pendroy	Severe: flooding	Moderate: too clayey, percs slowly	Moderate: too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
48A:					
Vanda	Moderate: percs slowly, too clayey, excess salt	Moderate: too clayey, excess salt, percs slowly	Moderate: too clayey, percs slowly, excess salt	Moderate: too clayey	Severe: too clayey
49A:					
Lardell	Severe: flooding, excess salt	Severe: excess salt	Severe: excess salt	Moderate: wetness	Severe: excess salt
50B:					
Telstad	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
52B:					
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
56B:					
Scobey	Slight	Slight	Moderate: slope, small stones	Slight	Slight
59B:					
Weingart	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
60A:					
Havre	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
75C:					
Farnuf	Slight	Slight	Moderate: slope, small stones	Slight	Slight
79C:					
Yamacall	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
81A:					
Glendive	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
82B:					
Savage	Slight	Slight	Moderate: slope	Slight	Slight
82C:					
Savage	Slight	Slight	Severe: slope	Slight	Slight
84F:					
Macmeal, warm	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
Macmeal	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
90A:					
Harlake	Severe: flooding	Moderate: too clayey	Moderate: too clayey	Moderate: too clayey	Severe: too clayey
93A:					
Bowdoin	Severe: flooding, excess salt	Severe: excess salt	Severe: excess salt	Moderate: too clayey	Severe: excess salt, too clayey
94C:					
Busby	Slight	Slight	Moderate: slope	Slight	Slight
94D:					
Busby	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
96D:					
Megonot	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope, depth to rock
Kobase	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
97D:					
Neldore	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Moderate: too clayey	Severe: depth to rock, too clayey
Bascovy	Moderate: slope, percs slowly, too clayey	Moderate: slope, too clayey, percs slowly	Severe: slope	Severe: erodes easily	Severe: too clayey
100A:					
Hanly	Severe: flooding	Slight	Slight	Slight	Moderate: droughty
101E:					
Barkof	Severe: slope	Severe: slope	Severe: slope	Moderate: too clayey, slope	Severe: slope, too clayey
Windham	Severe: slope, small stones	Severe: slope, small stones	Severe: slope, small stones	Severe: small stones	Severe: small stones, slope
110C:					
Attewan	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
Beaverell	Moderate: small stones, dusty	Moderate: small stones, dusty	Severe: small stones	Moderate: dusty	Severe: droughty
115F:					
Silverchief	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
Whitecow, warm	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
Macmeal	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
120F:					
Mocmont, cool	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
Mocmont	Severe: slope, small stones	Severe: slope, small stones	Severe: slope, small stones	Severe: slope	Severe: small stones, slope
121F:					
Mocmont	Severe: slope, small stones	Severe: slope, small stones	Severe: slope, small stones	Severe: slope	Severe: small stones, slope
Mocmont, cool	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
121F:(cont.)					
Tolex	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, small stones, depth to rock	Severe: slope	Severe: slope, depth to rock
122F:					
Mocmont, cool	Severe: slope, large stones, small stones	Severe: slope, large stones, small stones	Severe: large stones, slope, small stones	Severe: slope	Severe: small stones, slope
Landusky	Severe: slope, large stones, small stones	Severe: slope, large stones, small stones	Severe: large stones, slope, small stones	Severe: slope, small stones	Severe: small stones, large stones, droughty
130F:					
Rubble land.					
Mocmont, cool	Severe: slope, large stones, small stones	Severe: slope, large stones, small stones	Severe: large stones, slope, small stones	Severe: slope	Severe: small stones, slope
Rock outcrop.					
139F:					
Whitecow, warm	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
Warneke	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, small stones, depth to rock	Severe: slope	Severe: slope, depth to rock
140F:					
Whitecow	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
Whitecow, warm	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
151F:					
Warneke	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, small stones, depth to rock	Severe: slope	Severe: slope, depth to rock
Whitecow, warm	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
Rock outcrop.					
160D:					
Whitecow, warm	Moderate: slope, small stones	Moderate: slope, small stones	Severe: slope, small stones	Slight	Moderate: small stones, large stones, droughty

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
160E:					
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
170A:					
Dimmick	Severe: ponding, percs slowly, too clayey	Severe: ponding, too clayey, percs slowly	Severe: too clayey, ponding, percs slowly	Severe: ponding, too clayey	Severe: ponding, too clayey
180B:					
Binna	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Moderate: droughty
Saypo	Slight	Slight	Slight	Slight	Slight
190B:					
Nesda	Severe: flooding	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones, droughty
Nesda, cool	Severe: flooding, small stones	Severe: small stones	Severe: small stones	Severe: small stones	Severe: small stones
201D:					
Cabba	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: erodes easily	Severe: slope, depth to rock
Windham	Severe: slope, small stones	Severe: slope, small stones	Severe: slope, small stones	Severe: small stones	Severe: small stones, slope
211B:					
Thoeny	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: dusty	Severe: excess sodium
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
212B:					
Thoeny	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: dusty	Severe: excess sodium
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
220E:					
Hillon	Severe: slope	Severe: slope	Severe: large stones, slope	Moderate: large stones, slope, dusty	Severe: large stones, slope

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
220E:(cont.)					
Joplin	Severe: slope	Severe: slope	Severe: large stones, slope	Moderate: large stones, slope, dusty	Severe: slope
221D:					
Hillon	Moderate: slope, small stones, dusty	Moderate: slope, small stones, dusty	Severe: slope, small stones	Moderate: dusty	Moderate: small stones, slope
Kevin	Moderate: slope, small stones	Moderate: slope, small stones	Severe: slope, small stones	Slight	Moderate: small stones, large stones, slope
221E:					
Hillon	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope, dusty	Severe: slope
Kevin	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope	Severe: slope
224D:					
Hillon	Moderate: slope, small stones, dusty	Moderate: slope, small stones, dusty	Severe: slope, small stones	Moderate: dusty	Moderate: small stones, slope
Joplin	Moderate: slope, small stones, dusty	Moderate: slope, small stones, dusty	Severe: slope, small stones	Moderate: dusty	Moderate: small stones, slope
241B:					
Benz	Moderate: excess salt	Moderate: excess salt	Moderate: slope, excess salt	Slight	Moderate: excess salt, droughty
Vanda	Moderate: percs slowly, too clayey, excess salt	Moderate: too clayey, excess salt, percs slowly	Moderate: slope, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
250E:					
Bascovy	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope, too clayey
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: too clayey, slope	Severe: slope, depth to rock, too clayey
Weingart, thin	Severe: excess sodium	Severe: excess sodium	Severe: slope, excess sodium	Severe: erodes easily	Severe: excess sodium, too clayey

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
251C:					
Bascovy	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: slope, small stones, too clayey	Moderate: too clayey	Severe: too clayey
Neldore	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Moderate: too clayey	Severe: depth to rock, too clayey
270E:					
Beaverell	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope, dusty	Severe: droughty, slope
Tinsley	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: droughty, slope
271D:					
Beaverell	Moderate: slope, small stones, dusty	Moderate: slope, small stones, dusty	Severe: slope, small stones	Moderate: dusty	Severe: droughty
Evanston	Moderate: slope, dusty	Moderate: slope, dusty	Severe: slope	Severe: erodes easily	Moderate: slope
301C:					
Marvan, saline	Moderate: percs slowly, too clayey, excess salt	Moderate: too clayey, excess salt, percs slowly	Moderate: slope, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
Marvan	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: slope, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
302B:					
Marvan, saline	Moderate: percs slowly, too clayey, excess salt	Moderate: too clayey, excess salt, percs slowly	Moderate: slope, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
Vanda	Moderate: percs slowly, too clayey, excess salt	Moderate: too clayey, excess salt, percs slowly	Moderate: slope, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
311B:					
Ferd	Moderate: dusty	Moderate: dusty	Moderate: slope, dusty	Moderate: dusty	Slight
Gerdrum	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
312B:					
Ferd	Slight	Slight	Moderate: slope	Slight	Slight

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
312B:(cont.)					
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
320A:					
Kobase	Moderate: too clayey	Moderate: too clayey	Moderate: too clayey	Moderate: too clayey	Severe: too clayey
322C:					
Kobase	Slight	Slight	Moderate: slope	Slight	Slight
Megonot	Slight	Slight	Moderate: slope, small stones, depth to rock	Slight	Moderate: depth to rock
323B:					
Kobase	Slight	Slight	Moderate: slope	Slight	Slight
Marvan	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: slope, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
Weingart, thin	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
331B:					
Phillips	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
331C:					
Phillips	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight
Absher	Severe: excess sodium	Severe: excess sodium	Severe: slope, excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
332B:					
Phillips	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
333C:					
Phillips	Slight	Slight	Moderate: slope, small stones	Slight	Slight

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
333C:(cont.)					
Kevin	Severe: small stones	Severe: small stones	Severe: small stones	Slight	Severe: small stones
334C:					
Phillips	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Kevin	Slight	Slight	Moderate: slope, small stones	Slight	Slight
351C:					
Fortbenton	Slight	Slight	Moderate: slope	Slight	Slight
373C:					
Evanston	Moderate: dusty	Moderate: dusty	Moderate: slope, dusty	Moderate: dusty	Slight
Chinook	Slight	Slight	Moderate: slope, small stones	Slight	Slight
381B:					
Ethridge	Slight	Slight	Moderate: slope	Slight	Slight
Gerdrum	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
383C:					
Ethridge	Slight	Slight	Moderate: slope	Slight	Slight
Beaverell	Moderate: small stones, dusty	Moderate: small stones, dusty	Severe: small stones	Moderate: dusty	Severe: droughty
391B:					
Creed	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: dusty	Severe: excess sodium
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
392B:					
Creed	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: dusty	Severe: excess sodium
Gerdrum	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
402B:					
Gerdrum	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
421C:					
Joplin	Moderate: dusty	Moderate: dusty	Moderate: slope, dusty	Moderate: dusty	Slight
Hillon	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
424D:					
Joplin	Moderate: slope, dusty	Moderate: slope, dusty	Severe: slope	Severe: erodes easily	Moderate: slope
Telstad	Moderate: slope, dusty	Moderate: slope, dusty	Severe: slope	Severe: erodes easily	Moderate: slope
426C:					
Joplin	Moderate: small stones, dusty	Moderate: small stones, dusty	Severe: small stones	Moderate: dusty	Moderate: small stones
Hillon	Moderate: small stones, dusty	Moderate: small stones, dusty	Severe: small stones	Moderate: dusty	Moderate: small stones
442C:					
Kevin	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Hillon	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
444C:					
Kevin	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Sunburst	Slight	Slight	Moderate: slope, small stones	Slight	Moderate: large stones
446D:					
Kevin	Severe: small stones	Severe: small stones	Severe: slope, small stones	Slight	Severe: small stones
Sunburst	Severe: small stones	Severe: small stones	Severe: slope, small stones	Severe: small stones	Severe: small stones
481A:					
Bigsag	Severe: flooding, wetness, percs slowly	Severe: too clayey, excess sodium, excess salt	Severe: too clayey, wetness, percs slowly	Severe: too clayey	Severe: excess salt, excess sodium, too clayey

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
502C:					
Telstad	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
503C:					
Telstad	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
Joplin	Moderate: dusty	Moderate: dusty	Moderate: slope, dusty	Moderate: dusty	Slight
504C:					
Telstad	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
505C:					
Telstad	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
Hillon	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
511B:					
Martinsdale	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Judith	Slight	Slight	Moderate: slope, small stones	Slight	Slight
521B:					
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
561B:					
Scobey	Slight	Slight	Moderate: slope, small stones	Slight	Slight

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
561B:(cont.)					
Phillips	Slight	Slight	Moderate: slope, small stones	Slight	Slight
562C:					
Scobey	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
563C:					
Scobey	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Kevin	Slight	Slight	Moderate: slope, small stones	Slight	Slight
564C:					
Scobey	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Kevin	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
566C:					
Scobey	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones, large stones
Kevin	Severe: large stones	Severe: large stones	Severe: large stones, small stones	Moderate: large stones	Severe: large stones
567C:					
Scobey	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones, large stones
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: small stones, excess sodium	Slight	Severe: excess sodium
Absher	Severe: excess sodium	Severe: excess sodium	Severe: small stones, excess sodium	Slight	Severe: excess sodium
601A:					
Havre	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
Harlake	Severe: flooding	Slight	Slight	Slight	Slight

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
601A:(cont.)					
Glendive	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
603A:					
Havre	Severe: flooding	Moderate: too clayey	Moderate: too clayey	Moderate: too clayey	Severe: too clayey
604A:					
Bullhook	Severe: flooding	Moderate: excess salt, dusty	Moderate: dusty, excess salt	Moderate: dusty	Moderate: excess salt
650C:					
Yetull	Moderate: too sandy	Moderate: too sandy	Moderate: slope, too sandy	Moderate: too sandy	Moderate: droughty
650D:					
Yetull	Moderate: slope, too sandy	Moderate: slope, too sandy	Severe: slope	Moderate: too sandy	Moderate: droughty, slope
731C:					
Judith	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Windham	Severe: small stones	Severe: small stones	Severe: small stones	Severe: small stones	Severe: small stones
791E:					
Yamacall, calcareous	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
Yamacall	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
792C:					
Yamacall, calcareous	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
Yamacall	Moderate: dusty	Moderate: dusty	Moderate: slope, small stones, dusty	Moderate: dusty	Slight
811A:					
Glendive	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
Havre	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
821D:					
Savage	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
821D:(cont.)					
Farnuf	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
860C:					
Weingart	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
Weingart, thin	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
871B:					
Tamaneen	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Danvers	Slight	Slight	Moderate: slope	Slight	Slight
901A:					
Lallie	Severe: flooding, ponding, excess salt	Severe: ponding, excess salt	Severe: ponding, excess salt	Severe: ponding	Severe: excess salt, ponding
902A:					
Lostriver	Severe: flooding	Moderate: too clayey, excess salt	Moderate: too clayey, excess salt	Moderate: too clayey	Severe: too clayey
Bullhook	Severe: flooding	Moderate: excess salt, dusty	Moderate: dusty, excess salt	Moderate: dusty	Moderate: excess salt
903A:					
Harlake	Severe: flooding	Moderate: too clayey	Moderate: too clayey	Moderate: too clayey	Severe: too clayey
Lostriver	Severe: flooding	Moderate: too clayey, excess salt	Moderate: too clayey, excess salt	Moderate: too clayey	Severe: too clayey
905A:					
Harlake	Severe: flooding	Slight	Slight	Slight	Slight
Havre	Severe: flooding	Slight	Slight	Slight	Slight
921D:					
Sunburst	Moderate: slope, small stones	Moderate: slope, small stones	Severe: slope, small stones	Slight	Moderate: small stones, large stones, slope
Kevin	Moderate: slope, small stones	Moderate: slope, small stones	Severe: slope, small stones	Slight	Moderate: small stones, large stones, slope

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
923C:					
Sunburst	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones, large stones
Kevin	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones, large stones
923F:					
Sunburst	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope, too clayey
Kevin	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope	Severe: slope
924E:					
Sunburst	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: too clayey, slope	Severe: slope, too clayey
Bascovy	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope, too clayey
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: too clayey, slope	Severe: slope, depth to rock, too clayey
925C:					
Sunburst	Moderate: small stones, too clayey	Moderate: too clayey, small stones	Severe: small stones	Moderate: too clayey	Severe: too clayey
Bascovy	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: slope, small stones, too clayey	Moderate: too clayey	Severe: too clayey
Weingart, thin	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
926F:					
Sunburst	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope, too clayey
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Rock outcrop.					
930A:					
Wheatbelt	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding, too clayey

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
971F:					
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Cabbart	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, erodes easily	Severe: slope, depth to rock
Tinsley	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: droughty, slope
973E:					
Neldore, cool	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: too clayey, slope	Severe: slope, depth to rock, too clayey
Bascovy	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope, too clayey
974F:					
Pinebreaks	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
1021E:					
Cabbart	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: erodes easily	Severe: slope, depth to rock
Twilight	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Yawdim	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: erodes easily	Severe: slope, depth to rock
1022F:					
Hillon	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
Cabbart	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, erodes easily	Severe: slope, depth to rock
Rock outcrop.					

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1030D:					
Marvan	Moderate: slope, percs slowly, too clayey	Moderate: slope, too clayey, percs slowly	Severe: slope	Severe: erodes easily	Severe: too clayey
Gerdrum	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
1037D:					
Evanston	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight
Yamacall	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight
1052B:					
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
Thoeny	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: dusty	Severe: excess sodium
1059E:					
Weingart	Severe: excess sodium	Severe: excess sodium	Severe: slope, excess sodium	Severe: erodes easily	Severe: excess sodium
Vaeda	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Severe: slope	Moderate: too clayey	Severe: too clayey
Bascovy	Moderate: slope, percs slowly, too clayey	Moderate: slope, too clayey, percs slowly	Severe: slope	Severe: erodes easily	Severe: too clayey
1066D:					
Twilight	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope, depth to rock
Cabbart	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Severe: erodes easily	Severe: depth to rock
Marmarth	Moderate: slope, dusty	Moderate: slope, dusty	Severe: slope	Severe: erodes easily	Moderate: slope, depth to rock
1090B:					
Harlake	Severe: flooding	Moderate: too clayey	Moderate: too clayey	Moderate: too clayey	Severe: too clayey
Marvan	Moderate: percs slowly, too clayey	Moderate: too clayey, percs slowly	Moderate: slope, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
1221F:					
Hillon	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1221F:(cont.)					
Kevin	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope	Severe: slope
1251E:					
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: too clayey, slope	Severe: slope, depth to rock, too clayey
Bascovy	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope, too clayey
1261B:					
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
Nobe	Moderate: percs slowly, too clayey, excess salt	Moderate: too clayey, excess salt, percs slowly	Moderate: slope, too clayey, percs slowly	Moderate: too clayey	Severe: too clayey
1262A:					
Toston	Severe: flooding, excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
Nobe	Severe: flooding	Moderate: too clayey, excess salt, percs slowly	Moderate: too clayey, percs slowly, excess salt	Moderate: too clayey	Severe: too clayey
1332C:					
Phillips	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
Thoeny	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: dusty	Severe: excess sodium
1333C:					
Kevin	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
Phillips	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
1373C:					
Evanston	Moderate: dusty	Moderate: dusty	Moderate: slope, dusty	Moderate: dusty	Slight

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1373C: (cont.)					
Chinook	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Marmarth	Moderate: dusty	Moderate: dusty	Moderate: slope, depth to rock, dusty	Moderate: dusty	Moderate: depth to rock
1392B:					
Creed	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: dusty	Severe: excess sodium
Gerdrum	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
1400F:					
Rock outcrop.					
Arsite	Severe: slope, depth to rock, excess salt	Severe: slope, excess salt, depth to rock	Severe: slope, depth to rock, excess salt	Severe: slope, erodes easily	Severe: excess salt, slope, depth to rock
1441D:					
Kevin	Moderate: slope, small stones	Moderate: slope, small stones	Severe: slope, small stones	Slight	Moderate: small stones, large stones, slope
Scobey	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope
Phillips	Slight	Slight	Moderate: slope, small stones	Slight	Slight
1443E:					
Kevin	Moderate: slope, small stones	Moderate: slope, small stones	Severe: slope, small stones	Slight	Moderate: small stones, large stones, slope
Scobey	Slight	Slight	Severe: slope	Slight	Slight
Nishon	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding
1503D:					
Telstad	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight
Joplin	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1523C:					
Elloam	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Slight	Severe: excess sodium
Phillips	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Absher	Severe: excess sodium	Severe: excess sodium	Severe: excess sodium	Moderate: too clayey	Severe: excess sodium, too clayey
1850F:					
Cabbart	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, erodes easily	Severe: slope, depth to rock
Twilight	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Delpoint	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope
1920F:					
Sunburst	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope, too clayey
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
1970F:					
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Bascovy	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope, too clayey
Rock outcrop.					
1971F:					
Yawdim	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Cabbart	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, erodes easily	Severe: slope, depth to rock
Rock outcrop.					

Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1972F:					
Volborg	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Rock outcrop.					
1973F:					
Neldore, cool	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Rock outcrop.					
1976F:					
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Pinebreaks	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Bascovy	Severe: slope	Severe: slope	Severe: slope	Severe: slope, erodes easily	Severe: slope, too clayey
1977F:					
Volborg	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Pinebreaks	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Rock outcrop.					
2972F:					
Volborg	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Neldore	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, too clayey
Rock outcrop.					

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. If food, cover, or water is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area.

If the soils have potential for habitat development, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants.

Elements of Wildlife Habitat

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants used by wildlife. Examples are wheat, rye, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes planted for wildlife food and cover. Examples are fescue, bromegrass, timothy, orchardgrass, clover, alfalfa, trefoil, reed canarygrass, and crownvetch.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Examples are bluestem, indiangrass, blueberry, goldenrod, lambsquarters, dandelions, blackberry, ragweed, wheatgrass, fescue, and nightshade.

The major soil properties affecting the growth of grain and forage crops and wild herbaceous plants are depth of the root zone, texture of the surface layer, the amount of water available to plants, wetness, salinity or sodicity, and flooding. The length of the growing season also is important.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage that wildlife eat. Examples are oak, poplar, boxelder, birch, maple, green ash, willow, and American elm. Examples of fruit-producing shrubs that are suitable for planting on soils that have good potential for these plants are hawthorn, honeysuckle, American plum, redosier dogwood, chokecherry, serviceberry, silver buffaloberry, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover that provides habitat or supplies food in the form of browse, seed, or fruitlike cones. Examples are pine, spruce, hemlock, fir, yew, cedar, larch, and juniper.

The major soil properties affecting the growth of hardwood and coniferous trees and shrubs are depth of the root zone, the amount of water available to plants, and wetness.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Wetland plants produce food or cover for wetland wildlife. Examples of these plants are smartweed, wild millet, rushes, sedges, bulrushes, wild rice, arrowhead, waterplantain, pickerelweed, and cattail.

The major soil properties affecting wetland plants are texture of the surface layer, wetness, acidity or alkalinity, and slope.

Shallow water areas have an average depth of less than 5 feet. They are useful as habitat for some wildlife species. They are naturally wet areas or are created by dams, levees, or water-control measures in marshes or streams. Examples are muskrat marshes, waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

The major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability.

Kinds of Wildlife Habitat

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, and shrubs. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include Hungarian partridge, pheasant, sharp-tailed grouse, sage grouse, meadowlark, field sparrow, killdeer, cottontail rabbit, and red fox.

Habitat for woodland wildlife consists of areas of hardwoods or conifers or a mixture of these and associated grasses, legumes, and wild herbaceous plants. The wildlife attracted to this habitat include wild turkey, ruffed grouse, thrushes, woodpeckers, owls, tree squirrels, porcupine, raccoon, deer, elk, and black bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas that support water-tolerant plants. The wildlife attracted to this habitat include ducks, geese, herons, bitterns, rails, kingfishers, muskrat, otter, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. The wildlife attracted to rangeland include antelope, deer, sage grouse, meadowlark, and lark bunting.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

The table "Building Site Development" shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills generally are limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, potential for frost action, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

The table "Sanitary Facilities" shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. It also shows the suitability of the soils for use as a daily cover for landfill.

Soil properties are important in selecting sites for sanitary facilities and in identifying limiting soil properties and site features to be considered in planning, design, and installation. Soil limitation ratings of *slight, moderate,* or *severe* are given for septic tank absorption fields, sewage lagoons, and trench and area sanitary landfills. Soil suitability ratings of *good, fair,* and *poor* are given for daily cover for landfill.

A rating of *slight* or *good* indicates that the soils have no limitations or that the limitations can be easily overcome. Good performance and low maintenance can be expected. A rating of *moderate* or *fair* indicates that the limitations should be recognized but generally can be overcome by good management or special design. A rating of *severe* or *poor* indicates that overcoming the limitations is difficult or impractical. Increased maintenance may be required.

Septic tank absorption fields are areas in which subsurface systems of tile or perforated pipe distribute effluent from a septic tank into the natural soil. The centerline of the tile is assumed to be at a depth of 24 inches. Only the part of the soil between depths of 24 and 60 inches is considered in making the ratings. The soil properties and site features considered are those that affect the absorption of the effluent, those that affect the construction and maintenance of the system, and those that may affect public health.

The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below

the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted, relatively impervious soil material. Aerobic lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Relatively impervious soil material for the lagoon floor and sides is desirable to minimize seepage and contamination of local ground water.

The table "Sanitary Facilities" gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Trench sanitary landfill is an area where solid waste is disposed of by placing refuse in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil that is excavated from the trench. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. Soil properties that influence the risk of pollution, the ease of excavation, trafficability, and revegetation are the major considerations in rating the soils.

Area sanitary landfill is an area where solid waste is disposed of by placing refuse in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil that is imported from a source away from the site. A final cover of soil at least 2 feet thick is placed over the completed landfill. Soil properties that influence trafficability, revegetation, and the risk of pollution are the main considerations in rating the soils for area sanitary landfills.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of groundwater pollution. The ratings in the table "Sanitary Facilities" are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The suitability of a soil for use as cover is based on properties that affect workability and the ease of digging, moving, and spreading the material over the refuse daily during both wet and dry periods.

Soil texture, wetness, rock fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Waste Management

Soil properties are important when organic waste is applied as fertilizer and wastewater is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and wastewater. Unfavorable soil properties can result in environmental damage.

The use of organic waste and wastewater as production resources results in energy and resource conservation and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the wastewater to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure- and food-processing waste, municipal sewage sludge, use of wastewater for irrigation, and treatment of wastewater by slow rate, overland flow, and rapid infiltration processes.

Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Construction Materials

The table "Construction Materials" gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In the table "Construction Materials," the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have one or more of the following characteristics: a plasticity index of more than 10, a high shrink-swell potential, many stones, slopes of more than 25 percent, or a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table "Construction Materials," only the probability of finding material in suitable quantity in or below the soil is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils generally is preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

The table "Water Management" gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In the table "Water Management," the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even more than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The

construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of soil blowing, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Building Site Development

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
10C: Barkof	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
11B: Degrand	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
13B: Beaverton	Severe: cutbanks cave	Moderate: large stones	Moderate: large stones	Moderate: large stones	Moderate: frost action, large stones	Moderate: small stones, large stones, droughty
25C: Bascovy	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
28A: Nishon	Severe: ponding	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: shrink-swell, low strength, ponding	Severe: ponding
29A: McKenzie	Severe: ponding	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: shrink-swell, low strength, ponding	Severe: ponding, too clayey
30A: Marvan	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
31B: Ferd	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
32B: Kobase	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
33B: Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
35C: Assinniboine	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
36C: Chinook	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Slight

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
37B: Evanston	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, low strength, frost action	Slight
37C: Evanston	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength, frost action	Slight
38B: Ethridge	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
38C: Ethridge	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
41A: Vaeda	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
43A: Pendroy	Severe: cutbanks cave	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
48A: Vanda	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
49A: Lardell	Severe: wetness	Severe: flooding	Severe: flooding, wetness	Severe: flooding	Severe: low strength, frost action	Severe: excess salt
50B: Telstad	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, low strength	Slight
52B: Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
56B: Scobey	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
59B: Weingart	Moderate: depth to rock, too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
60A:						
Havre	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Slight
75C:						
Farnuf	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
79C:						
Yamacall	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
81A:						
Glendive	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Slight
82B:						
Savage	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
82C:						
Savage	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
84F:						
Macmeal, warm	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Macmeal	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
90A:						
Harlake	Moderate: too clayey	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
93A:						
Bowdoin	Severe: cutbanks cave	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Severe: excess salt, too clayey
94C:						
Busby	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
94D:						
Busby	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope, frost action	Moderate: slope
96D:						
Megonot	Moderate: depth to rock, too clayey, slope	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Moderate: slope, depth to rock

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
96D:(cont.)						
Kobase	Moderate: too clayey, slope	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Moderate: slope
97D:						
Neldore	Severe: depth to rock	Severe: shrink-swell	Severe: depth to rock, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Severe: depth to rock, too clayey
Bascovy	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Severe: too clayey
100A:						
Hanly	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Moderate: droughty
101E:						
Barkof	Severe: cutbanks cave, slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
Windham	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope
110C:						
Attewan	Severe: cutbanks cave	Moderate: shrink-swell	Slight	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
Beaverell	Severe: cutbanks cave	Moderate: large stones	Moderate: large stones	Moderate: slope, large stones	Moderate: frost action, large stones	Severe: droughty
115F:						
Silverchief	Severe: slope	Severe: shrink-swell, slope	Severe: slope	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope
Whitecow, warm	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Macmeal	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
120F:						
Mocmont, cool	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Mocmont	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope
121F:						
Mocmont	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
121F:(cont.)						
Mocmont, cool---	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Tolex----------	Severe: depth to rock, slope	Severe: slope, depth to rock	Severe: depth to rock, slope	Severe: slope, depth to rock	Severe: depth to rock, slope	Severe: slope, depth to rock
122F:						
Mocmont, cool---	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope
Landusky--------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, large stones, droughty
130F:						
Rubble land.						
Mocmont, cool---	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope
Rock outcrop.						
139F:						
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Warneke---------	Severe: depth to rock, slope	Severe: slope, depth to rock	Severe: depth to rock, slope	Severe: slope, depth to rock	Severe: depth to rock, slope	Severe: slope, depth to rock
140F:						
Whitecow--------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
151F:						
Warneke---------	Severe: depth to rock, slope	Severe: slope, depth to rock	Severe: depth to rock, slope	Severe: slope, depth to rock	Severe: depth to rock, slope	Severe: slope, depth to rock
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Rock outcrop.						
160D:						
Whitecow, warm--	Moderate: large stones, slope	Moderate: slope, large stones	Moderate: slope, large stones	Severe: slope	Moderate: slope, frost action, large stones	Moderate: small stones, large stones, droughty
160E:						
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
170A:						
Dimmick	Severe: ponding	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: shrink-swell, low strength, ponding	Severe: ponding, too clayey
180B:						
Binna	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
Saypo	Moderate: wetness	Moderate: shrink-swell	Moderate: wetness, shrink-swell	Moderate: shrink-swell	Severe: frost action	Slight
190B:						
Nesda	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Moderate: small stones, droughty
Nesda, cool	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: small stones
200F:						
Mined land.						
201D:						
Cabba	Severe: depth to rock, slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Severe: slope	Severe: slope, depth to rock
Windham	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: small stones, slope
211B:						
Thoeny	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
212B:						
Thoeny	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
220E:						
Hillon	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: large stones, slope
Joplin	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
221D:						
Hillon	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Moderate: small stones, slope

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
221D: (cont.)						
Kevin	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Moderate: small stones, large stones, slope
221E:						
Hillon	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope
Kevin	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope
224D:						
Hillon	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Moderate: small stones, slope
Joplin	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Moderate: shrink-swell, slope, frost action	Moderate: small stones, slope
241B:						
Benz	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, frost action	Moderate: excess salt, droughty
Vanda	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
250E:						
Bascovy	Severe: cutbanks cave, slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
Neldore	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Weingart, thin	Moderate: depth to rock, too clayey, slope	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
251C:						
Bascovy	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
Neldore	Severe: depth to rock	Severe: shrink-swell	Severe: depth to rock, shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: depth to rock, too clayey

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
270E:						
Beaverell	Severe: cutbanks cave, slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: droughty, slope
Tinsley	Severe: cutbanks cave, slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: droughty, slope
271D:						
Beaverell	Severe: cutbanks cave	Moderate: slope, large stones	Moderate: slope, large stones	Severe: slope	Moderate: slope, frost action, large stones	Severe: droughty
Evanston	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Moderate: shrink-swell, low strength, slope	Moderate: slope
301C:						
Marvan, saline	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
Marvan	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
302B:						
Marvan, saline	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
Vanda	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
311B:						
Ferd	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Gerdrum	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium
312B:						
Ferd	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
320A:						
Kobase	Moderate: too clayey, wetness	Moderate: shrink-swell	Moderate: wetness, shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: too clayey

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
322C:						
Kobase	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
Megonot	Moderate: depth to rock, too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Moderate: depth to rock
323B:						
Kobase	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
Marvan	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
Weingart, thin	Moderate: depth to rock, too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
331B:						
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
331C:						
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
332B:						
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
333C:						
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Kevin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: small stones
334C:						
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
334C:(cont.)						
Kevin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
351C:						
Fortbenton	Slight	Slight	Moderate: shrink-swell	Moderate: slope	Moderate: frost action	Slight
373C:						
Evanston	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength, frost action	Slight
Chinook	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
381B:						
Ethridge	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
Gerdrum	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium
383C:						
Ethridge	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
Beaverell	Severe: cutbanks cave	Moderate: large stones	Moderate: large stones	Moderate: slope, large stones	Moderate: frost action, large stones	Severe: droughty
391B:						
Creed	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
392B:						
Creed	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
Gerdrum	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium
402B:						
Gerdrum	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
421C:						
Joplin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
Hillon	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
424D:						
Joplin	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Moderate: shrink-swell, slope, frost action	Moderate: slope
Telstad	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Moderate: shrink-swell, low strength, slope	Moderate: slope
426C:						
Joplin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Moderate: small stones
Hillon	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Moderate: small stones
442C:						
Kevin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Hillon	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
444C:						
Kevin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Sunburst	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Moderate: large stones
446D:						
Kevin	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Severe: small stones
Sunburst	Moderate: too clayey, slope	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Severe: small stones
481A:						
Bigsag	Severe: wetness	Severe: flooding, wetness, shrink-swell	Severe: flooding, wetness, shrink-swell	Severe: flooding, wetness, shrink-swell	Severe: shrink-swell, low strength	Severe: excess salt, excess sodium, too clayey

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
502C:						
Telstad	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength	Slight
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: excess sodium
503C:						
Telstad	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength	Slight
Joplin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
504C:						
Telstad	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength	Slight
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
505C:						
Telstad	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength	Slight
Hillon	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
511B:						
Martinsdale	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, frost action	Slight
Judith	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
521B:						
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
561B:						
Scobey	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
562C:						
Scobey	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: excess sodium
563C:						
Scobey	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Kevin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
564C:						
Scobey	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Kevin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: excess sodium
566C:						
Scobey	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Moderate: small stones, large stones
Kevin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: large stones
567C:						
Scobey	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Moderate: small stones, large stones
Elloam	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: excess sodium
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium
600:						
Pits, gravel.						
601A:						
Havre	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Slight

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
601A:(cont.)						
Harlake	Moderate: too clayey	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Slight
Glendive	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Slight
603A:						
Havre	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Severe: too clayey
604A:						
Bullhook	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: shrink-swell, flooding, frost action	Moderate: excess salt
610:						
Pits, bentonite.						
650C:						
Yetull	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Slight	Moderate: droughty
650D:						
Yetull	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: droughty, slope
731C:						
Judith	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Windham	Moderate: large stones	Moderate: large stones	Moderate: large stones	Moderate: slope, large stones	Moderate: frost action, large stones	Severe: small stones
791E:						
Yamacall, calcareous	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Yamacall	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
792C:						
Yamacall, calcareous	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
Yamacall	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
811A:						
Glendive	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Slight

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
811A: (cont.)						
Havre	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Slight
821D:						
Savage	Moderate: too clayey, slope	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Moderate: slope
Farnuf	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope	Severe: slope	Moderate: shrink-swell, slope, frost action	Moderate: slope
860C:						
Weingart	Moderate: depth to rock, too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium
Weingart, thin	Moderate: depth to rock, too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
871B:						
Tamaneen	Moderate: too clayey	Slight	Slight	Slight	Moderate: frost action	Slight
Danvers	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Slight
901A:						
Lallie	Severe: ponding	Severe: flooding, ponding, shrink-swell	Severe: flooding, ponding, shrink-swell	Severe: flooding, ponding, shrink-swell	Severe: shrink-swell, low strength, ponding	Severe: excess salt, ponding
902A:						
Lostriver	Moderate: too clayey	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
Bullhook	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: shrink-swell, flooding, frost action	Moderate: excess salt
903A:						
Harlake	Moderate: too clayey	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
Lostriver	Moderate: too clayey	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
905A:						
Harlake	Moderate: too clayey, wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: low strength	Slight

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
905A:(cont.)						
Havre	Moderate: wetness	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: low strength, flooding, frost action	Slight
921D:						
Sunburst	Moderate: too clayey, slope	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Moderate: small stones, large stones, slope
Kevin	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Moderate: small stones, large stones, slope
923C:						
Sunburst	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Moderate: small stones, large stones
Kevin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Moderate: small stones, large stones
923F:						
Sunburst	Severe: slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
Kevin	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope
924E:						
Sunburst	Severe: slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
Bascovy	Severe: cutbanks cave, slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
Neldore	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
925C:						
Sunburst	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
Bascovy	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
925C:(cont.)						
Weingart, thin--	Moderate: depth to rock, too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
926F:						
Sunburst--------	Severe: slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
Neldore---------	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Rock outcrop.						
930A:						
Wheatbelt-------	Severe: cutbanks cave, ponding	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: shrink-swell, low strength, ponding	Severe: ponding, too clayey
971F:						
Neldore---------	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Cabbart---------	Severe: depth to rock, slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Severe: slope	Severe: slope, depth to rock
Tinsley---------	Severe: cutbanks cave, slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: droughty, slope
973E:						
Neldore, cool---	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Bascovy---------	Severe: cutbanks cave, slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
974F:						
Pinebreaks------	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Neldore---------	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1021E:						
Cabbart	Severe: depth to rock, slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Severe: slope	Severe: slope, depth to rock
Twilight	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Yawdim	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock
1022F:						
Hillon	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope
Cabbart	Severe: depth to rock, slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Severe: slope	Severe: slope, depth to rock
Rock outcrop.						
1030D:						
Marvan	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Severe: too clayey
Gerdrum	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium
1037D:						
Evanston	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength, frost action	Slight
Yamacall	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
1052B:						
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
Thoeny	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
1059E:						
Weingart	Moderate: depth to rock, too clayey, slope	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Severe: excess sodium
Vaeda	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1059E:(cont.)						
Bascovy	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength	Severe: too clayey
1066D:						
Twilight	Moderate: depth to rock, slope	Moderate: slope	Moderate: depth to rock, slope	Severe: slope	Moderate: slope, frost action	Moderate: slope, depth to rock
Cabbart	Severe: depth to rock	Moderate: shrink-swell, slope, depth to rock	Severe: depth to rock	Severe: slope	Moderate: depth to rock, shrink-swell, low strength	Severe: depth to rock
Marmarth	Moderate: depth to rock, slope	Moderate: shrink-swell, slope	Moderate: depth to rock, slope, shrink-swell	Severe: slope	Moderate: shrink-swell, low strength, slope	Moderate: slope, depth to rock
1090B:						
Harlake	Moderate: too clayey	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
Marvan	Severe: cutbanks cave	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
1221F:						
Hillon	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope
Kevin	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope
1251E:						
Neldore	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Bascovy	Severe: cutbanks cave, slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
1261B:						
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
Nobe	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
1262A:						
Toston	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: frost action	Severe: excess sodium

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1262A:(cont.)						
Nobe	Moderate: too clayey, wetness	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: flooding, shrink-swell	Severe: shrink-swell, low strength	Severe: too clayey
1332C:						
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: excess sodium
Thoeny	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: excess sodium
1333C:						
Kevin	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Moderate: slope
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: excess sodium
1373C:						
Evanston	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength, frost action	Slight
Chinook	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Marmarth	Moderate: depth to rock	Moderate: shrink-swell	Moderate: depth to rock, shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength, frost action	Moderate: depth to rock
1392B:						
Creed	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Severe: excess sodium
Gerdrum	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
1400F:						
Rock outcrop.						

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1400F:(cont.)						
Arsite	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: excess salt, slope, depth to rock
1441D:						
Kevin	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Moderate: small stones, large stones, slope
Scobey	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Moderate: slope
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
1443E:						
Kevin	Moderate: slope	Moderate: shrink-swell, slope	Moderate: slope, shrink-swell	Severe: slope	Severe: low strength	Moderate: small stones, large stones, slope
Scobey	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Nishon	Severe: ponding	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: ponding, shrink-swell	Severe: shrink-swell, low strength, ponding	Severe: ponding
1503D:						
Telstad	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, low strength	Slight
Joplin	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Moderate: shrink-swell, frost action	Slight
1523C:						
Elloam	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Severe: excess sodium
Phillips	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
Absher	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell, low strength	Severe: excess sodium, too clayey
1850F:						
Cabbart	Severe: depth to rock, slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Severe: slope	Severe: slope, depth to rock

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1850F:(cont.)						
Twilight	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Delpoint	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
1920F:						
Sunburst	Severe: slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
Neldore	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
1970F:						
Neldore	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Bascovy	Severe: cutbanks cave, slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
Rock outcrop.						
1971F:						
Yawdim	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Cabbart	Severe: depth to rock, slope	Severe: slope	Severe: depth to rock, slope	Severe: slope	Severe: slope	Severe: slope, depth to rock
Rock outcrop.						
1972F:						
Volborg	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Rock outcrop.						
1973F:						
Neldore, cool	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Neldore	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey

Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1973F: (cont.) Rock outcrop.						
1976F:						
Neldore	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Pinebreaks	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Bascovy	Severe: cutbanks cave, slope	Severe: shrink-swell, slope	Severe: slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, too clayey
1977F:						
Volborg	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Pinebreaks	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Rock outcrop.						
2972F:						
Volborg	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Neldore	Severe: depth to rock, slope	Severe: shrink-swell, slope	Severe: depth to rock, slope, shrink-swell	Severe: shrink-swell, slope	Severe: shrink-swell, low strength, slope	Severe: slope, depth to rock, too clayey
Rock outcrop.						
W: Water.						

Sanitary Facilities

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
10C:					
Barkof	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock, too clayey	Severe: depth to rock	Poor: depth to rock, too clayey, hard to pack
11B:					
Degrand	Severe: poor filter	Severe: seepage	Severe: too sandy	Slight	Poor: seepage, too sandy
13B:					
Beaverton	Severe: poor filter	Severe: seepage	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy, small stones
25C:					
Bascovy	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock, too clayey	Severe: depth to rock	Poor: depth to rock, too clayey, hard to pack
28A:					
Nishon	Severe: ponding, percs slowly	Severe: ponding	Severe: ponding, too clayey	Severe: ponding	Poor: too clayey, hard to pack, ponding
29A:					
McKenzie	Severe: ponding, percs slowly	Severe: ponding	Severe: ponding, too clayey	Severe: ponding	Poor: too clayey, hard to pack, ponding
30A:					
Marvan	Severe: percs slowly	Slight	Severe: too clayey	Slight	Poor: too clayey, hard to pack
31B:					
Ferd	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
32B:					
Kobase	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
33B:					
Phillips	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
35C:					
Assinniboine	Moderate: percs slowly	Severe: seepage	Severe: too sandy	Slight	Poor: too sandy
36C:					
Chinook	Slight	Severe: seepage	Slight	Slight	Good

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
37B:					
Evanston	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
37C:					
Evanston	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
38B:					
Ethridge	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
38C:					
Ethridge	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
41A:					
Vaeda	Severe: percs slowly	Slight	Slight	Slight	Poor: hard to pack
43A:					
Pendroy	Severe: percs slowly	Slight	Severe: too clayey	Moderate: flooding	Poor: too clayey, hard to pack
48A:					
Vanda	Severe: percs slowly	Slight	Slight	Slight	Poor: hard to pack
49A:					
Lardell	Severe: wetness, percs slowly	Severe: wetness	Severe: wetness, excess salt	Severe: wetness	Poor: excess salt
50B:					
Telstad	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
52B:					
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
56B:					
Scobey	Severe: percs slowly	Moderate: slope	Slight	Slight	Fair: small stones
59B:					
Weingart	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock, hard to pack
60A:					
Havre	Moderate: flooding, percs slowly	Moderate: seepage	Moderate: flooding	Moderate: flooding	Good
75C:					
Farnuf	Moderate: percs slowly	Moderate: seepage, slope	Moderate: too clayey	Slight	Fair: too clayey, small stones

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
79C:					
Yamacall	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
81A:					
Glendive	Moderate: flooding	Severe: seepage	Moderate: flooding, too sandy	Moderate: flooding	Fair: too sandy
82B:					
Savage	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey
82C:					
Savage	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey
84F:					
Macmeal, warm	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: small stones, slope
Macmeal	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: small stones, slope
90A:					
Harlake	Severe: percs slowly	Slight	Moderate: flooding	Moderate: flooding	Poor: hard to pack
93A:					
Bowdoin	Severe: percs slowly	Slight	Severe: too clayey	Moderate: flooding	Poor: too clayey, hard to pack
94C:					
Busby	Severe: poor filter	Severe: seepage	Moderate: too sandy	Slight	Fair: too sandy
94D:					
Busby	Severe: poor filter	Severe: seepage, slope	Moderate: slope, too sandy	Moderate: slope	Fair: too sandy, slope
96D:					
Megonot	Severe: depth to rock, percs slowly	Severe: depth to rock, slope	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Kobase	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
97D:					
Neldore	Severe: depth to rock	Severe: depth to rock, slope	Severe: depth to rock	Moderate: slope	Poor: depth to rock, hard to pack
Bascovy	Severe: depth to rock, percs slowly	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Severe: depth to rock	Poor: depth to rock, too clayey, hard to pack

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
100A:					
Hanly	Severe: poor filter	Severe: seepage	Severe: too sandy	Moderate: flooding	Poor: seepage, too sandy
101E:					
Barkof	Severe: depth to rock, percs slowly, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Windham	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: seepage, small stones, slope
110C:					
Attewan	Severe: poor filter	Severe: seepage	Severe: too sandy	Slight	Poor: seepage, too sandy, small stones
Beaverell	Severe: poor filter	Severe: seepage	Severe: too sandy, large stones	Slight	Poor: seepage, too sandy, small stones
115F:					
Silverchief	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: small stones, slope
Whitecow, warm	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Macmeal	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: small stones, slope
120F:					
Mocmont, cool	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Mocmont	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
121F:					
Mocmont	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Mocmont, cool	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Tolex	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Poor: depth to rock, small stones, slope

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
122F:					
Mocmont, cool---	Severe: slope	Severe: slope, large stones	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Landusky--------	Severe: poor filter, slope	Severe: seepage, slope, large stones	Severe: seepage, slope, large stones	Severe: seepage, slope	Poor: seepage, small stones, slope
130F:					
Rubble land.					
Mocmont, cool---	Severe: slope	Severe: slope, large stones	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Rock outcrop.					
139F:					
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Warneke---------	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Poor: depth to rock, small stones, slope
140F:					
Whitecow--------	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
151F:					
Warneke---------	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Poor: depth to rock, small stones, slope
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope
Rock outcrop.					
160D:					
Whitecow, warm--	Moderate: percs slowly, slope, large stones	Severe: slope	Severe: large stones	Moderate: slope	Poor: small stones
160E:					
Whitecow, warm--	Severe: slope	Severe: slope	Severe: slope, large stones	Severe: slope	Poor: small stones, slope

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
170A:					
Dimmick	Severe: ponding, percs slowly	Severe: ponding	Severe: ponding, too clayey	Severe: ponding	Poor: too clayey, hard to pack, ponding
180B:					
Binna	Slight	Severe: seepage	Moderate: too sandy	Slight	Poor: seepage, small stones
Saypo	Severe: wetness, percs slowly	Severe: wetness	Severe: wetness	Severe: wetness	Poor: small stones
190B:					
Nesda	Severe: poor filter	Severe: seepage	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy, small stones
Nesda, cool	Severe: flooding, poor filter	Severe: seepage, flooding	Severe: flooding, seepage, too sandy	Severe: flooding, seepage	Poor: seepage, too sandy, small stones
200F:					
Mined land.					
201D:					
Cabba	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Poor: depth to rock, slope
Windham	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: seepage, small stones, slope
211B:					
Thoeny	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
212B:					
Thoeny	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
220E:					
Hillon	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Joplin	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
221D:					
Hillon	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Kevin	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
221E:					
Hillon	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Kevin	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
224D:					
Hillon	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Joplin	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: small stones, slope
241B:					
Benz	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Vanda	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
250E:					
Bascovy	Severe: depth to rock, percs slowly, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Weingart, thin	Severe: depth to rock, percs slowly	Severe: depth to rock, slope	Severe: depth to rock	Moderate: slope	Poor: depth to rock, hard to pack
251C:					
Bascovy	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock, too clayey	Severe: depth to rock	Poor: depth to rock, too clayey, hard to pack
Neldore	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock, hard to pack
270E:					
Beaverell	Severe: poor filter, slope	Severe: seepage, slope	Severe: slope, too sandy, large stones	Severe: slope	Poor: seepage, too sandy, small stones

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
270E: (cont.)					
Tinsley	Severe: poor filter, slope	Severe: seepage, slope	Severe: seepage, slope, too sandy	Severe: seepage, slope	Poor: seepage, too sandy, small stones
271D:					
Beaverell	Severe: poor filter	Severe: seepage, slope	Severe: too sandy, large stones	Moderate: slope	Poor: seepage, too sandy, small stones
Evanston	Moderate: percs slowly, slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
301C:					
Marvan, saline	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey, hard to pack
Marvan	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey, hard to pack
302B:					
Marvan, saline	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey, hard to pack
Vanda	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
311B:					
Ferd	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Gerdrum	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
312B:					
Ferd	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
320A:					
Kobase	Severe: wetness, percs slowly	Slight	Severe: wetness	Severe: wetness	Fair: wetness
322C:					
Kobase	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Megonot	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
323B:					
Kobase	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Marvan	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey, hard to pack
Weingart, thin	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock, hard to pack
331B:					
Phillips	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
331C:					
Phillips	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
332B:					
Phillips	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
333C:					
Phillips	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
Kevin	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
334C:					
Phillips	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
Kevin	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
351C:					
Fortbenton	Severe: percs slowly	Severe: seepage	Slight	Slight	Good
373C:					
Evanston	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
Chinook	Slight	Severe: seepage	Slight	Slight	Good

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
381B:					
Ethridge	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Gerdrum	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
383C:					
Ethridge	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Beaverell	Severe: poor filter	Severe: seepage	Severe: too sandy, large stones	Slight	Poor: seepage, too sandy, small stones
391B:					
Creed	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
392B:					
Creed	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Gerdrum	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
402B:					
Gerdrum	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
421C:					
Joplin	Severe: percs slowly	Moderate: seepage, slope	Slight	Slight	Fair: small stones
Hillon	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
424D:					
Joplin	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: small stones, slope
Telstad	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
426C:					
Joplin	Severe: percs slowly	Moderate: seepage, slope	Slight	Slight	Fair: small stones
Hillon	Severe: percs slowly	Moderate: slope	Slight	Slight	Good

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
442C:					
Kevin	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Hillon	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
444C:					
Kevin	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Sunburst	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
446D:					
Kevin	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Sunburst	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
481A:					
Bigsag	Severe: wetness, percs slowly	Slight	Severe: wetness, too clayey, excess sodium	Severe: wetness	Poor: too clayey, hard to pack, wetness
502C:					
Telstad	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
503C:					
Telstad	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Joplin	Severe: percs slowly	Moderate: seepage, slope	Slight	Slight	Fair: small stones
504C:					
Telstad	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
505C:					
Telstad	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Hillon	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
511B:					
Martinsdale	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
Judith	Moderate: percs slowly	Severe: seepage	Severe: seepage	Severe: seepage	Poor: small stones

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
521B:					
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
561B:					
Scobey	Severe: percs slowly	Moderate: slope	Slight	Slight	Fair: small stones
Phillips	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
562C:					
Scobey	Severe: percs slowly	Moderate: slope	Slight	Slight	Fair: small stones
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
563C:					
Scobey	Severe: percs slowly	Moderate: slope	Slight	Slight	Fair: small stones
Kevin	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
564C:					
Scobey	Severe: percs slowly	Moderate: slope	Slight	Slight	Fair: small stones
Kevin	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
566C:					
Scobey	Severe: percs slowly	Moderate: slope	Slight	Slight	Fair: small stones
Kevin	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
567C:					
Scobey	Severe: percs slowly	Moderate: slope	Slight	Slight	Fair: small stones
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
600:					
Pits, gravel.					
601A:					
Havre	Moderate: flooding, percs slowly	Moderate: seepage	Moderate: flooding	Moderate: flooding	Good

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
601A:(cont.)					
Harlake	Severe: percs slowly	Slight	Moderate: flooding	Moderate: flooding	Poor: hard to pack
Glendive	Moderate: flooding	Severe: seepage	Moderate: flooding, too sandy	Moderate: flooding	Fair: too sandy
603A:					
Havre	Moderate: flooding, percs slowly	Moderate: seepage	Moderate: flooding	Moderate: flooding	Good
604A:					
Bullhook	Moderate: flooding, percs slowly	Moderate: seepage	Moderate: flooding	Moderate: flooding	Good
610:					
Pits, bentonite.					
650C:					
Yetull	Severe: poor filter	Severe: seepage	Severe: too sandy	Slight	Poor: seepage, too sandy
650D:					
Yetull	Severe: poor filter	Severe: seepage, slope	Severe: too sandy	Moderate: slope	Poor: seepage, too sandy
731C:					
Judith	Moderate: percs slowly	Severe: seepage	Severe: seepage	Severe: seepage	Poor: small stones
Windham	Moderate: percs slowly, large stones	Moderate: seepage, slope, large stones	Moderate: too clayey, large stones	Slight	Poor: seepage, small stones
791E:					
Yamacall, calcareous	Severe: slope	Severe: seepage, slope	Severe: slope	Severe: slope	Poor: slope
Yamacall	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
792C:					
Yamacall, calcareous	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
Yamacall	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
811A:					
Glendive	Moderate: flooding	Severe: seepage	Moderate: flooding, too sandy	Moderate: flooding	Fair: too sandy

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
811A:(cont.)					
Havre	Moderate: flooding, percs slowly	Moderate: seepage	Moderate: flooding	Moderate: flooding	Good
821D:					
Savage	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: too clayey
Farnuf	Moderate: percs slowly, slope	Severe: slope	Moderate: slope, too clayey	Moderate: slope	Fair: too clayey, small stones, slope
860C:					
Weingart	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock, hard to pack
Weingart, thin	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock, hard to pack
871B:					
Tamaneen	Moderate: percs slowly	Severe: seepage	Severe: seepage	Severe: seepage	Poor: seepage, small stones
Danvers	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey
901A:					
Lallie	Severe: ponding, percs slowly	Severe: ponding	Severe: ponding, too clayey	Severe: ponding	Poor: too clayey, hard to pack, ponding
902A:					
Lostriver	Severe: percs slowly	Slight	Moderate: flooding	Moderate: flooding	Poor: hard to pack
Bullhook	Moderate: flooding, percs slowly	Moderate: seepage	Moderate: flooding	Moderate: flooding	Good
903A:					
Harlake	Severe: percs slowly	Slight	Moderate: flooding	Moderate: flooding	Poor: hard to pack
Lostriver	Severe: percs slowly	Slight	Moderate: flooding	Moderate: flooding	Poor: hard to pack
905A:					
Harlake	Severe: wetness, percs slowly	Slight	Severe: wetness	Severe: wetness	Fair: wetness
Havre	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Fair: wetness

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
921D:					
Sunburst	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Kevin	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
923C:					
Sunburst	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Kevin	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
923F:					
Sunburst	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Kevin	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
924E:					
Sunburst	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Bascovy	Severe: depth to rock, percs slowly, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
925C:					
Sunburst	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Bascovy	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock, too clayey	Severe: depth to rock	Poor: depth to rock, too clayey, hard to pack
Weingart, thin	Severe: depth to rock, percs slowly	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock, hard to pack
926F:					
Sunburst	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Rock outcrop.					

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
930A:					
Wheatbelt	Severe: ponding, percs slowly	Severe: ponding	Severe: ponding, too clayey	Severe: ponding	Poor: too clayey, hard to pack, ponding
971F:					
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Cabbart	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Tinsley	Severe: poor filter, slope	Severe: seepage, slope	Severe: seepage, slope, too sandy	Severe: seepage, slope	Poor: seepage, too sandy, small stones
973E:					
Neldore, cool	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Bascovy	Severe: depth to rock, percs slowly, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
974F:					
Pinebreaks	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
1021E:					
Cabbart	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Twilight	Severe: depth to rock, slope	Severe: seepage, depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Yawdim	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
1022F:					
Hillon	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1022F:(cont.)					
Cabbart	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Rock outcrop.					
1030D:					
Marvan	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: too clayey, hard to pack
Gerdrum	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
1037D:					
Evanston	Moderate: percs slowly	Severe: slope	Slight	Slight	Good
Yamacall	Moderate: percs slowly	Severe: slope	Slight	Slight	Good
1052B:					
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Thoeny	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
1059E:					
Weingart	Severe: depth to rock, percs slowly	Severe: depth to rock, slope	Severe: depth to rock	Moderate: slope	Poor: depth to rock, hard to pack
Vaeda	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
Bascovy	Severe: depth to rock, percs slowly	Severe: depth to rock, slope	Severe: depth to rock, too clayey	Severe: depth to rock	Poor: depth to rock, too clayey, hard to pack
1066D:					
Twilight	Severe: depth to rock	Severe: seepage, depth to rock, slope	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Cabbart	Severe: depth to rock	Severe: depth to rock, slope	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Marmarth	Severe: depth to rock	Severe: depth to rock, slope	Severe: depth to rock	Moderate: slope	Poor: depth to rock
1090B:					
Harlake	Severe: percs slowly	Slight	Moderate: flooding	Moderate: flooding	Poor: hard to pack

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1090B:(cont.)					
Marvan	Severe: percs slowly	Moderate: slope	Severe: too clayey	Slight	Poor: too clayey, hard to pack
1221F:					
Hillon	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Kevin	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
1251E:					
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Bascovy	Severe: depth to rock, percs slowly, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
1261B:					
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
Nobe	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
1262A:					
Toston	Severe: wetness	Severe: wetness	Severe: wetness, excess sodium	Severe: wetness	Poor: excess sodium
Nobe	Severe: percs slowly	Slight	Severe: wetness	Moderate: flooding, wetness	Poor: hard to pack
1332C:					
Phillips	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Thoeny	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
1333C:					
Kevin	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Phillips	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1373C:					
Evanston	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
Chinook	Slight	Severe: seepage	Slight	Slight	Good
Marmarth	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
1392B:					
Creed	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Gerdrum	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
1400F:					
Rock outcrop.					
Arsite	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
1441D:					
Kevin	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Scobey	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: small stones, slope
Phillips	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
1443E:					
Kevin	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Scobey	Severe: percs slowly	Severe: slope	Slight	Slight	Fair: small stones
Nishon	Severe: ponding, percs slowly	Severe: ponding	Severe: ponding, too clayey	Severe: ponding	Poor: too clayey, hard to pack, ponding
1503D:					
Telstad	Severe: percs slowly	Severe: slope	Slight	Slight	Good
Joplin	Severe: percs slowly	Severe: slope	Slight	Slight	Fair: small stones

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1523C:					
Elloam	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
Phillips	Severe: percs slowly	Moderate: slope	Moderate: too clayey	Slight	Fair: too clayey
Absher	Severe: percs slowly	Moderate: slope	Slight	Slight	Poor: hard to pack
1850F:					
Cabbart	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Twilight	Severe: depth to rock, slope	Severe: seepage, depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Delpoint	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
1920F:					
Sunburst	Severe: percs slowly, slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
1970F:					
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Bascovy	Severe: depth to rock, percs slowly, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Rock outcrop.					
1971F:					
Yawdim	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Cabbart	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Rock outcrop.					

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1972F:					
Volborg	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Rock outcrop.					
1973F:					
Neldore, cool	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Rock outcrop.					
1976F:					
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Pinebreaks	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Bascovy	Severe: depth to rock, percs slowly, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
1977F:					
Volborg	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Pinebreaks	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope, too clayey	Severe: depth to rock, slope	Poor: depth to rock, too clayey, hard to pack
Rock outcrop.					
2972F:					
Volborg	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, slope
Neldore	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: depth to rock, slope	Severe: slope	Poor: depth to rock, hard to pack, slope
Rock outcrop.					

Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
W: Water.					

Construction Materials

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
10C:				
Barkof	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
11B:				
Degrand	Good	Probable	Probable	Poor: too sandy, small stones
13B:				
Beaverton	Fair: large stones	Probable	Probable	Poor: too sandy, small stones, area reclaim
25C:				
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
28A:				
Nishon	Poor: shrink-swell, low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness
29A:				
McKenzie	Poor: shrink-swell, low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness
30A:				
Marvan	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
31B:				
Ferd	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
32B:				
Kobase	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
33B:				
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
35C:				
Assinniboine	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones, thin layer

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
36C:				
Chinook	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
37B:				
Evanston	Fair: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, large stones
37C:				
Evanston	Fair: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, large stones
38B:				
Ethridge	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
38C:				
Ethridge	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
41A:				
Vaeda	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
43A:				
Pendroy	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
48A:				
Vanda	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
49A:				
Lardell	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
50B:				
Telstad	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
52B:				
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
56B:				
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
59B:				
Weingart	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
60A:				
Havre	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
75C:				
Farnuf	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
79C:				
Yamacall	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
81A:				
Glendive	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
82B:				
Savage	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
82C:				
Savage	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
84F:				
Macmeal, warm	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
Macmeal	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
90A:				
Harlake	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
93A:				
Bowdoin	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
94C:				
Busby	Good	Improbable: excess fines	Improbable: excess fines	Good
94D:				
Busby	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope
96D:				
Megonot	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
96D:(cont.)				
Kobase	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
97D:				
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
100A:				
Hanly	Good	Probable	Improbable: too sandy	Poor: too sandy
101E:				
Barkof	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
Windham	Fair: large stones, slope	Probable	Probable	Poor: small stones, area reclaim, slope
110C:				
Attewan	Good	Probable	Probable	Poor: small stones, area reclaim
Beaverell	Fair: large stones	Probable	Probable	Poor: too sandy, small stones, area reclaim
115F:				
Silverchief	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, area reclaim
Whitecow, warm	Poor: slope	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim, slope
Macmeal	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope
120F:				
Mocmont, cool	Poor: slope	Improbable: small stones	Probable	Poor: small stones, area reclaim, slope

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
120F:(cont.)				
Mocmont	Poor: slope	Improbable: small stones	Probable	Poor: small stones, area reclaim, slope
121F:				
Mocmont	Poor: slope	Improbable: small stones	Probable	Poor: small stones, area reclaim, slope
Mocmont, cool	Poor: slope	Improbable: small stones	Probable	Poor: small stones, area reclaim, slope
Tolex	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, small stones, slope
122F:				
Mocmont, cool	Poor: slope	Improbable: small stones	Probable	Poor: small stones, area reclaim, slope
Landusky	Poor: slope	Improbable: small stones	Probable	Poor: small stones, area reclaim, slope
130F: Rubble land.				
Mocmont, cool	Poor: slope	Improbable: small stones	Probable	Poor: small stones, area reclaim, slope
Rock outcrop.				
139F:				
Whitecow, warm	Poor: slope	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim, slope
Warneke	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, small stones, slope
140F:				
Whitecow	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim, slope

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
140F:(cont.)				
Whitecow, warm--	Poor: slope	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim, slope
151F:				
Warneke---------	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, small stones, slope
Whitecow, warm--	Poor: slope	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim, slope
Rock outcrop.				
160D:				
Whitecow, warm--	Fair: large stones	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim
160E:				
Whitecow, warm--	Poor: slope	Improbable: excess fines, large stones	Improbable: excess fines, large stones	Poor: small stones, area reclaim, slope
170A:				
Dimmick---------	Poor: shrink-swell, low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness
180B:				
Binna-----------	Good	Probable	Probable	Poor: small stones, area reclaim
Saypo-----------	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
190B:				
Nesda-----------	Good	Probable	Probable	Poor: too sandy, small stones, area reclaim
Nesda, cool-----	Good	Probable	Probable	Poor: too sandy, small stones, area reclaim
200F:				
Mined land.				
201D:				
Cabba-----------	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, slope

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
201D: (cont.)				
Windham	Fair: large stones, slope	Probable	Probable	Poor: small stones, area reclaim, slope
211B:				
Thoeny	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
212B:				
Thoeny	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
220E:				
Hillon	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, slope
Joplin	Fair: shrink-swell, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, slope
221D:				
Hillon	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
221E:				
Hillon	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, slope
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer, slope
224D:				
Hillon	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Joplin	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones
241B:				
Benz	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: excess salt

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
241B:(cont.)				
Vanda	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
250E:				
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Weingart, thin	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, excess salt
251C:				
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey
270E:				
Beaverell	Fair: large stones, slope	Probable	Probable	Poor: too sandy, small stones, area reclaim
Tinsley	Poor: slope	Probable	Probable	Poor: too sandy, small stones, area reclaim
271D:				
Beaverell	Fair: large stones	Probable	Probable	Poor: too sandy, small stones, area reclaim
Evanston	Fair: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, large stones, slope
301C:				
Marvan, saline	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
Marvan	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
302:				
Marvan, saline--	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
Vanda	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
311B:				
Ferd	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Gerdrum	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess sodium
312B:				
Ferd	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
320A:				
Kobase	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
322C:				
Kobase	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Megonot	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones
323B:				
Kobase	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Marvan	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Weingart, thin--	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, excess salt
331B:				
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
331C:				
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
332B:				
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
333C:				
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
334C:				
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
351C:				
Fortbenton	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Good
373C:				
Evanston	Fair: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, large stones
Chinook	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
381B:				
Ethridge	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Gerdrum	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess sodium
383C:				
Ethridge	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Beaverell	Fair: large stones	Probable	Probable	Poor: too sandy, small stones, area reclaim

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
391B:				
Creed	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
392B:				
Creed	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
Gerdrum	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess sodium
402B:				
Gerdrum	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess sodium
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
421C:				
Joplin	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Hillon	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
424D:				
Joplin	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Telstad	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones, slope
426C:				
Joplin	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Hillon	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
442C:				
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Hillon	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
444C:				
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Sunburst	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
446D:				
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Sunburst	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones
481A:				
Bigsag	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
502C:				
Telstad	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
503C:				
Telstad	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
Joplin	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones
504C:				
Telstad	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
505C:				
Telstad	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
Hillon	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
511B:				
Martinsdale	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
511B:(cont.)				
Judith	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
521B:				
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
561B:				
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
562C:				
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
563C:				
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
564C:				
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
566C:				
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
567C:				
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
567C:(cont.)				
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones, excess salt, excess sodium
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, excess salt
600: Pits, gravel.				
601A:				
Havre	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
Harlake	Good	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Glendive	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
603A:				
Havre	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
604A:				
Bullhook	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: excess salt
610: Pits, bentonite.				
650C:				
Yetull	Good	Probable	Improbable: too sandy	Poor: too sandy
650D:				
Yetull	Good	Probable	Improbable: too sandy	Poor: too sandy
731C:				
Judith	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones, area reclaim
Windham	Fair: large stones	Probable	Probable	Poor: small stones, area reclaim
791E:				
Yamacall, calcareous	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Yamacall	Fair: shrink-swell, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
792C:				
Yamacall, calcareous	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones, area reclaim
Yamacall	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
811A:				
Glendive	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Havre	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
821D:				
Savage	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Farnuf	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
860C:				
Weingart	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
Weingart, thin	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, excess salt
871B:				
Tamaneen	Good	Improbable: small stones	Probable	Poor: small stones, area reclaim
Danvers	Good	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, area reclaim
901A:				
Lallie	Poor: shrink-swell, low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, wetness
902A:				
Lostriver	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
Bullhook	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: excess salt

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
903A:				
Harlake	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Lostriver	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
905A:				
Harlake	Good	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Havre	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
921D:				
Sunburst	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
923C:				
Sunburst	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
923F:				
Sunburst	Poor: shrink-swell, low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, slope
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer, slope
924E:				
Sunburst	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, slope
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
925C:				
Sunburst	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
925C:(cont.)				
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Weingart, thin	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, excess salt
926F:				
Sunburst	Poor: shrink-swell, low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, small stones, slope
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Rock outcrop.				
930A:				
Wheatbelt	Poor: shrink-swell, low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness
971F:				
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Cabbart	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, slope
Tinsley	Poor: slope	Probable	Probable	Poor: too sandy, small stones, area reclaim
973E:				
Neldore, cool	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
974F:				
Pinebreaks	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
974F:(cont.)				
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
1021E:				
Cabbart	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, slope
Twilight	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
Yawdim	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
1022F:				
Hillon	Poor: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Cabbart	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, slope
Rock outcrop.				
1030D:				
Marvan	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Gerdrum	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess sodium
1037D:				
Evanston	Fair: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, large stones
Yamacall	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
1052B:				
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
Thoeny	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
1059E:				
Weingart	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1059E:(cont.)				
Vaeda	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
1066D:				
Twilight	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: depth to rock, thin layer, slope
Cabbart	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Marmarth	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: depth to rock, too clayey, thin layer
1090B:				
Harlake	Good	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Marvan	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
1221F:				
Hillon	Poor: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones, slope
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer, slope
1251E:				
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
1261B:				
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
Nobe	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1262A:				
Toston	Good	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
Nobe	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt
1332C:				
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
Thoeny	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
1333C:				
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
1373C:				
Evanston	Fair: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, large stones
Chinook	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Marmarth	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: depth to rock, too clayey, thin layer
1392B:				
Creed	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
Gerdrum	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess sodium
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
1400F:				
Rock outcrop.				

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1400F:(cont.)				
Arsite	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, excess salt
1441D:				
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
1443E:				
Kevin	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Scobey	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Nishon	Poor: shrink-swell, low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness
1503D:				
Telstad	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey, small stones
Joplin	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: small stones
1523C:				
Elloam	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: excess salt, excess sodium
Phillips	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Absher	Poor: shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, excess salt, excess sodium
1850F:				
Cabbart	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, slope
Twilight	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Delpoint	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1920F:				
Sunburst	Poor: shrink-swell, low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
1970F:				
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Bascovy	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
Rock outcrop.				
1971F:				
Yawdim	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Cabbart	Poor: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, slope
Rock outcrop.				
1972F:				
Volborg	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Rock outcrop.				
1973F:				
Neldore, cool	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Rock outcrop.				
1976F:				
Neldore	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope

Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1976F:(cont.)				
Pinebreaks------	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Bascovy---------	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
1977F:				
Volborg---------	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Pinebreaks------	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Rock outcrop.				
2972F:				
Volborg---------	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Neldore---------	Poor: depth to rock, shrink-swell, low strength	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock, too clayey, slope
Rock outcrop.				
W:				
Water.				

Water Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
10C: Barkof	Moderate: depth to rock, slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Depth to rock, percs slowly	Depth to rock, percs slowly
11B: Degrand	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Droughty, erodes easily	Erodes easily, too sandy	Too arid, erodes easily, droughty
13B: Beaverton	Severe: seepage	Severe: seepage	Severe: no water	Deep to water	Large stones, droughty, rooting depth	Large stones, too sandy	Large stones, droughty, rooting depth
25C: Bascovy	Moderate: depth to rock, slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Depth to rock, erodes easily, percs slowly	Erodes easily, depth to rock, percs slowly
28A: Nishon	Slight	Severe: ponding	Severe: slow refill	Ponding, percs slowly	Ponding, percs slowly, erodes easily	Erodes easily, ponding, percs slowly	Wetness, erodes easily, percs slowly
29A: McKenzie	Slight	Severe: hard to pack, ponding	Severe: no water	Ponding, percs slowly	Ponding, slow intake, percs slowly	Ponding, percs slowly	Wetness, excess salt, percs slowly
30A: Marvan	Slight	Severe: hard to pack	Severe: no water	Deep to water	Slow intake, percs slowly, erodes easily	Erodes easily, percs slowly	Erodes easily, percs slowly
31B: Ferd	Slight	Moderate: piping	Severe: no water	Deep to water	Percs slowly, erodes easily, excess salt	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
32B: Kobase	Slight	Slight	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
33B: Phillips	Slight	Severe: piping	Severe: no water	Deep to water	Percs slowly, rooting depth, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
35C: Assinniboine	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Slope, soil blowing	Too sandy, soil blowing	Too arid
36C: Chinook	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Slope, soil blowing	Soil blowing	Too arid
37B: Evanston	Moderate: seepage	Moderate: piping	Severe: no water	Deep to water	Erodes easily	Erodes easily	Too arid, erodes easily
37C: Evanston	Moderate: seepage, slope	Moderate: piping	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily	Too arid, erodes easily
38B: Ethridge	Slight	Slight	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
38C: Ethridge	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
41A: Vaeda	Slight	Moderate: hard to pack, excess salt	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, erodes easily, droughty

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
43A:							
Pendroy	Slight	Severe: hard to pack	Severe: no water	Deep to water	Slow intake, percs slowly, erodes easily	Erodes easily, percs slowly	Erodes easily, percs slowly
48A:							
Vanda	Slight	Severe: hard to pack	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, erodes easily
49A:							
Lardell	Slight	Severe: wetness, excess salt	Severe: slow refill, salty water	Frost action, excess salt	Wetness, droughty, erodes easily	Erodes easily, wetness	Too arid, excess salt, erodes easily
50B:							
Telstad	Slight	Severe: piping	Severe: no water	Deep to water	Percs slowly, rooting depth, erodes easily	Erodes easily	Too arid, erodes easily, rooting depth
52B:							
Elloam	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
56B:							
Scobey	Slight	Slight	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
59B:							
Weingart	Moderate: depth to rock	Severe: excess sodium	Severe: no water	Deep to water	Percs slowly, depth to rock, erodes easily	Depth to rock, erodes easily, percs slowly	Too arid, excess sodium, erodes easily
60A:							
Havre	Moderate: seepage	Severe: piping	Severe: no water	Deep to water	Erodes easily	Erodes easily	Too arid, erodes easily
75C:							
Farnuf	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily, excess salt	Erodes easily	Erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
79C:							
Yamacall	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily	Too arid, erodes easily
81A:							
Glendive	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Excess salt	Favorable	Too arid
82B:							
Savage	Slight	Moderate: piping	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Erodes easily, percs slowly
82C:							
Savage	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Erodes easily, percs slowly
84F:							
Macmeal, warm	Severe: slope	Moderate: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Macmeal	Severe: slope	Moderate: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
90A:							
Harlake	Slight	Severe: hard to pack	Severe: no water	Deep to water	Slow intake, percs slowly	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
93A:							
Bowdoin	Slight	Severe: hard to pack	Severe: no water	Deep to water	Slow intake, percs slowly, erodes easily	Erodes easily, percs slowly	Excess salt, erodes easily, percs slowly
94C:							
Busby	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Slope, soil blowing	Too sandy, soil blowing	Too arid
94D:							
Busby	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, soil blowing	Slope, too sandy, soil blowing	Too arid, slope

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
96D:							
Megonot	Severe: slope	Severe: thin layer	Severe: no water	Deep to water	Slope, percs slowly, depth to rock	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
Kobase	Severe: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
97D:							
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Bascovy	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
100A:							
Hanly	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Droughty, soil blowing	Too sandy, soil blowing	Too arid, droughty
101E:							
Barkof	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Slope, depth to rock, percs slowly
Windham	Severe: slope	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
110C:							
Attewan	Severe: seepage	Severe: seepage	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily, too sandy	Too arid, erodes easily
Beaverell	Severe: seepage	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Large stones, too sandy	Too arid, large stones, droughty
115F:							
Silverchief	Severe: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Slope, erodes easily	Slope, erodes easily, percs slowly

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
115F:(cont.)							
Whitecow, warm--	Severe: slope	Severe: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Macmeal---------	Severe: slope	Moderate: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
120F:							
Mocmont, cool---	Severe: slope	Moderate: thin layer, large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Mocmont---------	Severe: slope	Moderate: thin layer, large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones, soil blowing	Large stones, slope, droughty
121F:							
Mocmont---------	Severe: slope	Moderate: thin layer, large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones, soil blowing	Large stones, slope, droughty
Mocmont, cool---	Severe: slope	Moderate: thin layer, large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Tolex-----------	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, droughty, depth to rock	Slope, depth to rock	Slope, droughty, depth to rock
122F:							
Mocmont, cool---	Severe: slope	Severe: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Landusky--------	Severe: seepage, slope	Severe: seepage, large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty

Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
130F:							
Rubble land.							
Mocmont, cool---	Severe: slope	Severe: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Rock outcrop.							
139F:							
Whitecow, warm--	Severe: slope	Severe: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Warneke---------	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones, depth to rock	Large stones, slope, droughty
140F:							
Whitecow--------	Severe: slope	Moderate: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Whitecow, warm--	Severe: slope	Severe: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
151F:							
Warneke---------	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones, depth to rock	Large stones, slope, droughty
Whitecow, warm--	Severe: slope	Severe: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
Rock outcrop.							
160D:							
Whitecow, warm--	Severe: slope	Severe: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
160E:							
Whitecow, warm--	Severe: slope	Severe: large stones	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
170A:							
Dimmick---------	Slight	Severe: hard to pack, ponding	Severe: slow refill	Ponding, percs slowly	Ponding, slow intake, percs slowly	Ponding, percs slowly	Wetness, percs slowly
180B:							
Binna-----------	Severe: seepage	Severe: seepage	Severe: no water	Deep to water	Droughty, erodes easily	Erodes easily, too sandy	Too arid, erodes easily, droughty
Saypo-----------	Slight	Severe: piping	Severe: slow refill	Deep to water	Favorable	Favorable	Favorable
190B:							
Nesda-----------	Severe: seepage	Severe: seepage	Severe: no water	Deep to water	Droughty	Large stones, too sandy	Large stones, droughty
Nesda, cool-----	Severe: seepage	Severe: seepage	Severe: no water	Deep to water	Droughty, soil blowing	Large stones, too sandy, soil blowing	Large stones, droughty
200F:							
Mined land.							
201D:							
Cabba-----------	Severe: depth to rock, slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
Windham---------	Severe: slope	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones	Large stones, slope, droughty
211B:							
Thoeny----------	Slight	Severe: excess sodium	Severe: no water	Deep to water	Percs slowly, erodes easily, excess sodium	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
211B: (cont.)							
Absher	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
212B:							
Thoeny	Slight	Severe: excess sodium	Severe: no water	Deep to water	Percs slowly, erodes easily, excess sodium	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Elloam	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
220E:							
Hillon	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Joplin	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
221D:							
Hillon	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
221E:							
Hillon	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
224D:							
Hillon	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Joplin	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
241B:							
Benz	Slight	Severe: piping	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess salt, erodes easily
Vanda	Slight	Severe: hard to pack	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, erodes easily
250E:							
Bascovy	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Weingart, thin	Severe: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, slow intake	Slope, depth to rock, erodes easily	Too arid, slope, excess sodium
251C:							
Bascovy	Moderate: depth to rock, slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Depth to rock, erodes easily, percs slowly	Erodes easily, depth to rock, percs slowly
Neldore	Severe: depth to rock	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Depth to rock, percs slowly	Too arid, depth to rock, percs slowly
270E:							
Beaverell	Severe: seepage, slope	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones, too sandy	Too arid, large stones, slope

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
270E: (cont.)							
Tinsley	Severe: seepage, slope	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones, too sandy	Large stones, slope, droughty
271D:							
Beaverell	Severe: seepage, slope	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones, too sandy	Too arid, large stones, slope
Evanston	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, erodes easily	Slope, erodes easily	Too arid, slope, erodes easily
301C:							
Marvan, saline	Moderate: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, droughty, slow intake	Erodes easily, percs slowly	Excess salt, erodes easily, droughty
Marvan	Moderate: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Erodes easily, percs slowly	Erodes easily, percs slowly
302B:							
Marvan, saline	Moderate: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, droughty, slow intake	Erodes easily, percs slowly	Excess salt, erodes easily, droughty
Vanda	Moderate: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, droughty, slow intake	Erodes easily, percs slowly	Too arid, excess salt, erodes easily
311B:							
Ferd	Slight	Moderate: piping	Severe: no water	Deep to water	Percs slowly, erodes easily, excess salt	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Gerdrum	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
312B:							
Ferd	Slight	Moderate: piping	Severe: no water	Deep to water	Percs slowly, erodes easily, excess salt	Erodes easily, percs slowly	Erodes easily, percs slowly
Absher	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
320A:							
Kobase	Slight	Moderate: piping, wetness	Severe: slow refill	Deep to water	Slow intake, percs slowly	Erodes easily	Too arid, erodes easily, percs slowly
322C:							
Kobase	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Megonot	Moderate: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, percs slowly, depth to rock	Depth to rock, erodes easily, percs slowly	Too arid, erodes easily, depth to rock
323B:							
Kobase	Slight	Slight	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Marvan	Slight	Severe: hard to pack	Severe: no water	Deep to water	Slow intake, percs slowly, erodes easily	Erodes easily, percs slowly	Erodes easily, percs slowly
Weingart, thin	Moderate: depth to rock	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Depth to rock, erodes easily, percs slowly	Too arid, excess sodium, erodes easily
331B:							
Phillips	Slight	Severe: piping	Severe: no water	Deep to water	Percs slowly, rooting depth, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
Absher	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
331C:							
Phillips	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
Absher	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, slow intake	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
332B:							
Phillips	Slight	Severe: piping	Severe: no water	Deep to water	Percs slowly, rooting depth, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
Elloam	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
333C:							
Phillips	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Erodes easily, rooting depth, percs slowly
Kevin	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
334C:							
Phillips	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Erodes easily, rooting depth, percs slowly
Kevin	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
351C:							
Fortbenton	Severe: seepage	Moderate: piping	Severe: no water	Deep to water	Slope, soil blowing, percs slowly	Erodes easily, soil blowing, percs slowly	Too arid, erodes easily, percs slowly

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
373C:							
Evanston	Moderate: seepage, slope	Moderate: piping	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily	Too arid, erodes easily
Chinook	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Slope, soil blowing	Soil blowing	Too arid
381B:							
Ethridge	Slight	Slight	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Gerdrum	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
383C:							
Ethridge	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Beaverell	Severe: seepage	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Large stones, too sandy	Too arid, large stones, droughty
391B:							
Creed	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Absher	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
392B:							
Creed	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Gerdrum	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
402B:							
Gerdrum	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Absher	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
421C:							
Joplin	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
Hillon	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
424D:							
Joplin	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Telstad	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily	Too arid, slope, erodes easily
426C:							
Joplin	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
Hillon	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
442C:							
Kevin	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
Hillon	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
444C:							
Kevin	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
Sunburst	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
446D:							
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Sunburst	Severe: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, excess salt	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
481A:							
Bigsag	Slight	Severe: wetness, excess sodium	Severe: slow refill	Percs slowly, excess salt, excess sodium	Wetness, droughty, slow intake	Erodes easily, wetness, percs slowly	Wetness, excess salt, excess sodium
502C:							
Telstad	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily	Too arid, erodes easily, rooting depth
Elloam	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
503C:							
Telstad	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily	Too arid, erodes easily, rooting depth
Joplin	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
504C:							
Telstad	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily	Too arid, erodes easily, rooting depth

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
504C: (cont.)							
Absher	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, slow intake	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
505C:							
Telstad	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily	Too arid, erodes easily, rooting depth
Hillon	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
511B:							
Martinsdale	Slight	Severe: piping	Severe: no water	Deep to water	Erodes easily, excess salt	Erodes easily	Erodes easily
Judith	Severe: seepage	Moderate: large stones	Severe: no water	Deep to water	Erodes easily	Large stones, erodes easily	Large stones, erodes easily
521B:							
Elloam	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Absher	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
561B:							
Scobey	Slight	Slight	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Phillips	Slight	Severe: piping	Severe: no water	Deep to water	Percs slowly, rooting depth, erodes easily	Erodes easily, percs slowly	Erodes easily, rooting depth, percs slowly
562C:							
Scobey	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
562C:(cont.)							
Elloam	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
563C:							
Scobey	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Kevin	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
564C:							
Scobey	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Kevin	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
Elloam	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
566C:							
Scobey	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Kevin	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
567C:							
Scobey	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Elloam	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
567C: (cont.) Absher	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
600: Pits, gravel.							
601A: Havre	Moderate: seepage	Severe: piping	Severe: no water	Deep to water	Erodes easily	Erodes easily	Too arid, erodes easily
Harlake	Slight	Severe: hard to pack	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Glendive	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Excess salt	Favorable	Too arid
603A: Havre	Moderate: seepage	Severe: piping	Severe: no water	Deep to water	Slow intake, percs slowly	Favorable	Too arid, percs slowly
604A: Bullhook	Moderate: seepage	Severe: piping	Severe: no water	Deep to water	Erodes easily, excess salt	Erodes easily	Too arid, excess salt, erodes easily
610: Pits, bentonite.							
650C: Yetull	Severe: seepage	Severe: seepage, piping	Severe: no water	Deep to water	Slope, droughty, fast intake	Too sandy, soil blowing	Too arid, droughty
650D: Yetull	Severe: seepage, slope	Severe: seepage, piping	Severe: no water	Deep to water	Slope, droughty, fast intake	Slope, too sandy, soil blowing	Too arid, slope, droughty
731C: Judith	Severe: seepage	Moderate: large stones	Severe: no water	Deep to water	Slope, erodes easily	Large stones, erodes easily	Large stones, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
731C: (cont.)							
Windham	Moderate: seepage, slope	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Large stones	Large stones, droughty
791E:							
Yamacall, calcareous	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily	Slope, erodes easily	Too arid, slope, erodes easily
Yamacall	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily	Slope, erodes easily	Too arid, slope, erodes easily
792C:							
Yamacall, calcareous	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily	Too arid, erodes easily
Yamacall	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily	Too arid, erodes easily
811A:							
Glendive	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Excess salt	Favorable	Too arid
Havre	Moderate: seepage	Severe: piping	Severe: no water	Deep to water	Erodes easily	Erodes easily	Too arid, erodes easily
821D:							
Savage	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Slope, erodes easily, percs slowly	Slope, erodes easily, percs slowly
Farnuf	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily, excess salt	Slope, erodes easily	Slope, erodes easily
860C:							
Weingart	Moderate: depth to rock, slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, percs slowly, depth to rock	Depth to rock, erodes easily, percs slowly	Too arid, excess sodium, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
860C: (cont.)							
Weingart, thin--	Moderate: depth to rock, slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, slow intake	Depth to rock, erodes easily, percs slowly	Too arid, excess sodium, erodes easily
871B:							
Tamaneen--------	Severe: seepage	Severe: seepage	Severe: no water	Deep to water	Erodes easily	Erodes easily	Erodes easily
Danvers---------	Slight	Slight	Severe: no water	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Erodes easily, percs slowly
901A:							
Lallie----------	Slight	Severe: hard to pack, ponding	Severe: slow refill	Ponding, percs slowly, frost action	Ponding, percs slowly, excess salt	Erodes easily, ponding, percs slowly	Wetness, excess salt, erodes easily
902A:							
Lostriver-------	Slight	Moderate: hard to pack, excess salt	Severe: no water	Deep to water	Slow intake, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess salt, erodes easily
Bullhook--------	Moderate: seepage	Severe: piping	Severe: no water	Deep to water	Erodes easily, excess salt	Erodes easily	Too arid, excess salt, erodes easily
903A:							
Harlake---------	Slight	Severe: hard to pack	Severe: no water	Deep to water	Slow intake, percs slowly	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Lostriver-------	Slight	Moderate: hard to pack, excess salt	Severe: no water	Deep to water	Slow intake, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess salt, erodes easily
905A:							
Harlake---------	Slight	Moderate: thin layer, wetness	Severe: slow refill	Deep to water	Percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Havre-----------	Moderate: seepage	Severe: piping	Moderate: deep to water, slow refill	Deep to water	Favorable	Erodes easily	Too arid, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
921D:							
Sunburst	Severe: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, excess salt	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
923C:							
Sunburst	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, excess salt	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Kevin	Moderate: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
923F:							
Sunburst	Severe: slope	Slight	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
924E:							
Sunburst	Severe: slope	Slight	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Bascovy	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
925C:							
Sunburst	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
925C: (cont.)							
Bascovy	Moderate: depth to rock, slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Depth to rock, erodes easily, percs slowly	Erodes easily, depth to rock, percs slowly
Weingart, thin	Moderate: depth to rock, slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, slow intake	Depth to rock, erodes easily, percs slowly	Too arid, excess sodium, erodes easily
926F:							
Sunburst	Severe: slope	Slight	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Rock outcrop.							
930A:							
Wheatbelt	Slight	Severe: hard to pack, ponding	Severe: slow refill	Ponding, percs slowly, excess salt	Ponding, slow intake, percs slowly	Erodes easily, ponding, percs slowly	Wetness, excess salt, erodes easily
971F:							
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Cabbart	Severe: depth to rock, slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
Tinsley	Severe: seepage, slope	Severe: seepage	Severe: no water	Deep to water	Slope, large stones, droughty	Slope, large stones, too sandy	Large stones, slope, droughty
973E:							
Neldore, cool	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
973E: (cont.)							
Bascovy	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
974F:							
Pinebreaks	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, droughty, slow intake	Slope, depth to rock, percs slowly	Slope, droughty, depth to rock
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
1021E:							
Cabbart	Severe: depth to rock, slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
Twilight	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, soil blowing, depth to rock	Slope, depth to rock, soil blowing	Too arid, slope, depth to rock
Yawdim	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, percs slowly, depth to rock	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
1022F:							
Hillon	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Cabbart	Severe: depth to rock, slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
Rock outcrop.							
1030D:							
Marvan	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, erodes easily, percs slowly	Slope, erodes easily, percs slowly

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1030D: (cont.)							
Gerdrum	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
1037D:							
Evanston	Moderate: seepage, slope	Moderate: piping	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily	Too arid, erodes easily
Yamacall	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily	Too arid, erodes easily
1052B:							
Elloam	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Thoeny	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
1059E:							
Weingart	Severe: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, percs slowly, depth to rock	Slope, depth to rock, erodes easily	Too arid, slope, excess sodium
Vaeda	Moderate: slope	Moderate: hard to pack, excess salt	Severe: no water	Deep to water	Slope, droughty, slow intake	Erodes easily, percs slowly	Too arid, erodes easily, droughty
Bascovy	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
1066D:							
Twilight	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, soil blowing, depth to rock	Slope, depth to rock, soil blowing	Too arid, slope, depth to rock
Cabbart	Severe: depth to rock, slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1066D: (cont.)							
Marmarth	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
1090B:							
Harlake	Slight	Severe: hard to pack	Severe: no water	Deep to water	Slow intake, percs slowly	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Marvan	Slight	Severe: hard to pack	Severe: no water	Deep to water	Slow intake, percs slowly, erodes easily	Erodes easily, percs slowly	Erodes easily, percs slowly
1221F:							
Hillon	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
1251E:							
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Bascovy	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
1261B:							
Absher	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
Nobe	Slight	Moderate: hard to pack, excess salt	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, erodes easily
1262A:							
Toston	Moderate: seepage	Severe: piping, excess sodium	Severe: slow refill, cutbanks cave	Deep to water	Percs slowly, erodes easily, excess sodium	Erodes easily, too sandy	Excess salt, excess sodium, erodes easily

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1262A:(cont.)							
Nobe	Slight	Moderate: hard to pack, excess salt	Severe: slow refill	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, erodes easily
1332C:							
Phillips	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Erodes easily, rooting depth, percs slowly
Elloam	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Thoeny	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
1333C:							
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Phillips	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Erodes easily, rooting depth, percs slowly
Elloam	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
1373C:							
Evanston	Moderate: seepage, slope	Moderate: piping	Severe: no water	Deep to water	Slope, erodes easily	Erodes easily	Too arid, erodes easily
Chinook	Severe: seepage	Severe: piping	Severe: no water	Deep to water	Slope, soil blowing	Soil blowing	Too arid
Marmarth	Moderate: seepage, depth to rock, slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Depth to rock, erodes easily	Too arid, erodes easily, depth to rock

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1392B:							
Creed	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Gerdrum	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Absher	Slight	Severe: excess sodium	Severe: no water	Deep to water	Droughty, slow intake, percs slowly	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
1400F:							
Rock outcrop.							
Arsite	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, droughty, slow intake	Slope, depth to rock, erodes easily	Too arid, slope, excess salt
1441D:							
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Scobey	Severe: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Phillips	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Erodes easily, rooting depth, percs slowly
1443E:							
Kevin	Severe: slope	Moderate: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Scobey	Moderate: slope	Slight	Severe: no water	Deep to water	Slope, percs slowly, erodes easily	Erodes easily, percs slowly	Too arid, erodes easily, percs slowly
Nishon	Slight	Severe: ponding	Severe: no water	Ponding, percs slowly	Ponding, percs slowly, erodes easily	Erodes easily, ponding, percs slowly	Wetness, erodes easily, percs slowly

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1503D:							
Telstad	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily	Too arid, erodes easily, rooting depth
Joplin	Moderate: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Too arid, erodes easily, rooting depth
1523C:							
Elloam	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, percs slowly	Erodes easily, percs slowly	Too arid, excess sodium, erodes easily
Phillips	Moderate: slope	Severe: piping	Severe: no water	Deep to water	Slope, percs slowly, rooting depth	Erodes easily, percs slowly	Erodes easily, rooting depth, percs slowly
Absher	Moderate: slope	Severe: excess sodium	Severe: no water	Deep to water	Slope, droughty, slow intake	Erodes easily, percs slowly	Too arid, excess salt, excess sodium
1850F:							
Cabbart	Severe: depth to rock, slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
Twilight	Severe: seepage, slope	Severe: piping	Severe: no water	Deep to water	Slope, soil blowing, depth to rock	Slope, depth to rock, soil blowing	Too arid, slope, depth to rock
Delpoint	Severe: slope	Severe: piping	Severe: no water	Deep to water	Slope, depth to rock, erodes easily	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
1920F:							
Sunburst	Severe: slope	Slight	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, erodes easily, percs slowly	Too arid, slope, erodes easily
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1970F:							
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Bascovy	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
Rock outcrop.							
1971F:							
Yawdim	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, droughty, slow intake	Slope, depth to rock, percs slowly	Too arid, slope, droughty
Cabbart	Severe: depth to rock, slope	Severe: piping	Severe: no water	Deep to water	Slope, droughty, depth to rock	Slope, depth to rock, erodes easily	Too arid, slope, erodes easily
Rock outcrop.							
1972F:							
Volborg	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, soil blowing	Slope, depth to rock, soil blowing	Too arid, slope, depth to rock
Rock outcrop.							
1973F:							
Neldore, cool	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Rock outcrop.							
1976F:							
Neldore	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock

Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1976F: (cont.)							
Pinebreaks------	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, droughty, slow intake	Slope, depth to rock, percs slowly	Slope, droughty, depth to rock
Bascovy---------	Severe: slope	Severe: hard to pack	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, erodes easily	Slope, erodes easily, depth to rock
1977F:							
Volborg---------	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, soil blowing	Slope, depth to rock, soil blowing	Too arid, slope, depth to rock
Pinebreaks------	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, droughty, slow intake	Slope, depth to rock, percs slowly	Slope, droughty, depth to rock
Rock outcrop.							
2972F:							
Volborg---------	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, soil blowing	Slope, depth to rock, soil blowing	Too arid, slope, depth to rock
Neldore---------	Severe: depth to rock, slope	Severe: thin layer	Severe: no water	Deep to water	Slope, slow intake, percs slowly	Slope, depth to rock, percs slowly	Too arid, slope, depth to rock
Rock outcrop.							
W:							
Water.							

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

The table "Engineering Index Properties" gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1986) and the Unified soil classification system (ASTM, 1993).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

The tables "Physical Properties of the Soils" and "Chemical Properties of the Soils" show estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

The following paragraphs describe the columns in the table "Physical Properties of the Soils."

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given in the series descriptions in Part I of this survey.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. The estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In the table "Physical Properties of the Soils," the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent, is sometimes used.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table "Physical Properties of the Soils," the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, very fine sand, sand, and organic matter (up to 4 percent) and on soil structure and permeability. The estimates are modified by the presence of rock fragments. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility to soil blowing. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils generally are not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams that have more than 5 percent finely divided calcium carbonate. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils have less than 5 percent finely divided calcium carbonate. They are moderately erodible. Crops can be grown if measures to control soil blowing are used.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils have less than 5 percent finely divided calcium carbonate. They are moderately erodible. Crops can be grown if ordinary measures to control soil blowing are used.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils have less than 5 percent finely divided calcium carbonate. They are very slightly erodible. Crops can be grown if ordinary measures to control soil blowing are used.

8. Soils that are not subject to soil blowing because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to soil blowing, or the tons per acre per year that can be expected to be lost to soil blowing. There is a close correlation between soil blowing and the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence soil blowing.

The following paragraphs describe the columns in the table "Chemical Properties of the Soils."

Cation-exchange capacity is the total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. Soils having a high

cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the soil. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is given as the percent, by weight, of hydrated calcium sulfates in the soil. Gypsum is partially soluble in water and can be dissolved and removed by water. Soils that have a high content of gypsum (more than 10 percent) may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio is the measure of sodium relative to calcium and magnesium in the water extract from saturated soil paste. Soils having a sodium adsorption ratio of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

The table "Water Features" gives estimates of several important water features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

Hydrologic soil groups are groups of soils that, when saturated, have the same runoff potential under similar storm and ground cover conditions. The soil properties that affect the runoff potential are those that influence the minimum rate of infiltration in a bare soil after prolonged wetting and when the soil is not frozen. These properties include the depth to a seasonal high water table, the intake rate, permeability after prolonged wetting, and the depth to a very slowly permeable layer. The influences of ground cover and slope are treated independently and are not taken into account in hydrologic soil groups.

In the definitions of the hydrologic soil groups, the infiltration rate is the rate at which water enters the soil at the surface and is controlled by surface conditions. The transmission rate is the rate at which water moves through the soil and is controlled by properties of the soil layers.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of very deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflow from streams or by runoff from adjacent slopes. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in marshes and swamps or in closed depressions is considered to be ponding.

The table "Water Features" gives the frequency and duration of flooding and the time of year when flooding is most likely to occur. Frequency, duration, and probable dates of occurrence are estimated.

Frequency generally is expressed as none, rare, occasional, or frequent. *None* means flooding is not probable; *rare* that it is unlikely but is possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). The term *common* includes both frequent and occasional flooding.

Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 to 30 days), and *very long* (more than 30 days). The time of year that flooding is most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and level of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is a zone of saturation at the highest average depth during the wettest season. It is at least 6 inches thick, persists in the soil for more than a few weeks, and is within 6 feet of the surface. Indicated in the table "Water Features" are depth to the seasonal high water table, the kind of water table, and the months of the year when the water table usually is highest.

An *apparent* water table is indicated by the level at which water stands in a freshly dug, unlined borehole after adequate time is allowed for adjustments in the surrounding soil.

A *perched* water table is one that is above an unsaturated zone in the soil. The basis for determining that a water table is perched may be general knowledge of the area. The water table is proven to be perched if the water level in a borehole is observed to fall when the borehole is extended.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation.

Soil Features

The table "Soil Features" gives estimates of several important soil features used in land use planning that involves engineering considerations. These features are described in the following paragraphs.

Depth to bedrock is given if bedrock is within a depth of 60 inches. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

A *low* potential for frost action indicates that the soil is rarely susceptible to the formation of ice lenses; a *moderate* potential indicates that the soil is susceptible to the formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength; and a *high* potential indicates that the soil is highly susceptible to the formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of

corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil.

Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Engineering Index Properties

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
10C:												
Barkof	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-90	45-60	20-30
	4-29	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-90	45-65	25-45
	29-33	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
11B:												
Degrand	0-6	Loam	ML, SM	A-4	0	0-5	85-100	80-100	60-85	40-60	25-35	NP-10
	6-15	Sandy clay loam, clay loam	CL, SC, CL-ML, SC-SM	A-6, A-4	0	0-5	85-100	80-100	50-90	35-80	25-40	5-15
	15-23	Clay loam, loam, sandy loam	ML, SM	A-4	0	0-5	85-100	80-100	55-85	40-70	20-35	NP-10
	23-60	Sand, gravelly sand, loamy sand	SP, SP-SM, SM	A-1, A-3, A-2	0	0-5	65-100	55-100	25-70	0-15	---	NP
13B:												
Beaverton	0-5	Gravelly loam	CL-ML, SC-SM, GM-GC	A-4, A-2	0	0-10	65-80	60-75	50-70	30-60	25-30	5-10
	5-13	Very gravelly clay loam, very gravelly sandy clay loam	GM-GC, GC	A-4, A-2, A-6	0	0-25	40-55	35-50	30-45	20-40	25-35	5-15
	13-18	Very gravelly clay loam, very gravelly sandy clay loam	GM-GC, GC	A-4, A-2, A-6	0	0-25	40-55	35-50	30-45	20-40	25-35	5-15
	18-60	Extremely gravelly loamy sand, extremely gravelly sand, very gravelly loamy sand	GM, GP, GP-GM, SM	A-1	0	0-30	25-60	15-50	10-35	0-15	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
25C:												
Bascovy	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
28A:												
Nishon	0-4	Clay loam	CL	A-6, A-7	0	0	100	100	85-100	60-85	30-45	10-20
	4-30	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-65	20-45
	30-60	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	80-100	65-90	35-60	15-40
29A:												
McKenzie	0-3	Clay	CH	A-7	0	0	100	100	90-100	75-95	50-75	25-50
	3-8	Clay, silty clay	CH	A-7	0	0	100	100	95-100	75-95	50-75	25-50
	8-60	Clay, silty clay	CH	A-7	0	0	100	100	95-100	75-95	50-75	25-50
30A:												
Marvan	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-70	25-50
	4-19	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
	19-60	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
31B:												
Ferd	0-6	Loam	CL-ML, CL	A-4	0	0	100	95-100	80-95	55-75	25-30	5-10
	6-13	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0	100	95-100	85-100	70-90	35-50	15-30
	13-22	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	85-100	70-90	30-40	10-20
	22-60	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	85-100	70-90	30-40	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
32B:												
Kobase----------	0-6	Silty clay loam	CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	6-16	Silty clay loam, silty clay, clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	15-25
	16-60	Silty clay loam, silty clay, clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	15-25
33B:												
Phillips--------	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
35C:												
Assinniboine----	0-6	Fine sandy loam	SM	A-4, A-2	0	0	85-100	75-100	55-80	25-45	15-25	NP-5
	6-16	Sandy clay loam, fine sandy loam	CL-ML, SC-SM, CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-65	25-35	5-15
	16-34	Fine sandy loam, sandy loam, sandy clay loam	ML, SM, SC-SM, CL-ML	A-4	0	0	85-100	75-100	60-85	35-60	15-30	NP-10
	34-60	Stratified fine sandy loam to fine sand	SM	A-4, A-2	0	0	85-100	75-100	55-80	10-40	---	NP
36C:												
Chinook---------	0-6	Fine sandy loam	SM	A-4, A-2	0	0	80-100	75-100	65-85	30-50	15-25	NP-5
	6-16	Fine sandy loam, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	55-85	30-50	15-25	NP-5
	16-44	Fine sandy loam, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	55-85	30-50	15-25	NP-5
	44-60	Fine sandy loam, loamy fine sand, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	60-80	25-45	15-25	NP-5

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
37B:												
Evanston--------	0-5	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	85-90	65-70	25-35	5-15
	5-12	Clay loam, loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	12-24	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	24-60	Loam, clay loam, fine sandy loam	CL	A-6	0	0-5	95-100	95-100	70-90	50-75	25-35	10-15
37C:												
Evanston--------	0-5	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	85-90	65-70	25-35	5-15
	5-12	Clay loam, loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	12-24	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	24-60	Loam, clay loam, fine sandy loam	CL	A-6	0	0-5	95-100	95-100	70-90	50-75	25-35	10-15
38B:												
Ethridge--------	0-6	Clay loam	CL	A-6	0	0	100	95-100	85-100	70-80	25-40	10-20
	6-16	Silty clay, silty clay loam, clay	CL	A-7	0	0	100	95-100	95-100	90-95	40-50	20-30
	16-44	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	35-50	15-30
	44-60	Silty clay loam, clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	30-50	10-25
38C:												
Ethridge--------	0-6	Clay loam	CL	A-6	0	0	100	95-100	85-100	70-80	25-40	10-20
	6-16	Silty clay, silty clay loam, clay	CL	A-7	0	0	100	95-100	95-100	90-95	40-50	20-30
	16-44	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	35-50	15-30
	44-60	Silty clay loam, clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	30-50	10-25

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
41A:												
Vaeda	0-7	Clay	CH	A-7	0	0	95-100	75-100	70-95	55-90	50-65	25-40
	7-16	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	95-100	75-100	70-95	55-90	45-65	20-40
	16-60	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	95-100	75-100	70-95	55-90	45-65	20-40
43A:												
Pendroy	0-4	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-85	40-60
	4-34	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-85	40-60
	34-60	Silty clay, clay	CH	A-7	0	0	100	100	95-100	80-95	50-75	30-55
48A:												
Vanda	0-4	Clay	CL, CH	A-7	0	0	100	100	95-100	75-95	40-65	20-45
	4-9	Clay, silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	80-95	35-65	15-45
	9-60	Clay, silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	80-95	35-65	15-45
49A:												
Lardell	0-4	Clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-90	35-45	15-25
	4-16	Silty clay loam, clay loam	CL	A-6	0	0	100	100	90-100	75-90	30-40	10-20
	16-60	Stratified fine sandy loam to silty clay loam	CL	A-6	0	0	100	100	80-90	65-85	25-40	10-20
50B:												
Telstad	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-90	50-70	25-30	5-10
	6-14	Clay loam, loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-80	30-40	10-20
	14-38	Clay loam, loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	80-95	60-80	25-35	5-15
	38-60	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	75-90	55-75	25-35	5-15
52B:												
Elloam	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
56B:												
Scobey	0-6	Clay loam	CL	A-6	0	0-5	85-100	75-95	70-90	65-80	25-40	10-20
	6-16	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	16-35	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	35-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
59B:												
Weingart	0-4	Clay loam	CL	A-6, A-7	0	0	90-100	90-100	65-90	60-85	30-45	10-25
	4-12	Clay, silty clay	CL, CH	A-7	0	0	90-100	90-100	80-100	75-95	40-65	20-40
	12-20	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	75-100	70-90	35-60	15-35
	20-34	Shaly clay, silty clay, clay loam	CL, CH, SC, GC	A-6, A-7	0	0	60-95	55-90	50-85	45-80	35-60	15-35
	34-38	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
60A:												
Havre	0-5	Loam	CL-ML	A-4	0	0	100	100	80-95	60-90	20-30	5-10
	5-60	Stratified fine sandy loam to clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	80-95	60-80	20-35	5-15
75C:												
Farnuf	0-6	Loam	ML, CL-ML	A-4	0	0	80-100	75-100	60-100	55-80	20-30	NP-10
	6-19	Clay loam, loam, silty clay loam	CL	A-6	0	0	80-100	75-100	65-95	50-90	25-40	10-20
	19-32	Loam, clay loam, silt loam	CL, CL-ML	A-6, A-4	0	0	80-100	75-100	65-95	50-80	25-35	5-15
	32-60	Stratified gravelly sandy loam to silty clay loam	CL, SC, CL-ML, SC-SM	A-6, A-4	0	0-15	75-90	65-85	50-80	45-60	20-30	5-15
79C:												
Yamacall	0-3	Loam	CL-ML	A-4	0	0-5	85-100	80-100	60-85	55-75	25-30	5-10
	3-11	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	65-90	60-80	25-35	5-15
	11-60	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	60-85	55-75	25-35	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
81A:												
Glendive	0-4	Loam	ML, CL-ML	A-4	0	0	100	100	75-95	65-80	20-30	NP-10
	4-26	Loam, silt loam, sandy loam	ML, SM	A-4	0	0	100	100	65-95	40-70	15-25	NP-5
	26-60	Stratified loamy fine sand to clay loam	SM	A-4, A-2	0	0	95-100	75-100	60-90	25-50	15-25	NP-5
82B:												
Savage	0-3	Silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	75-95	25-40	5-15
	3-14	Clay, silty clay, silty clay loam	CL	A-7, A-6	0	0	95-100	95-100	85-100	75-95	35-50	15-30
	14-60	Silty clay, silty clay loam, clay	CL	A-7, A-6	0	0-5	90-100	85-100	75-100	65-95	30-50	10-30
82C:												
Savage	0-3	Silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	75-95	25-40	5-15
	3-14	Clay, silty clay, silty clay loam	CL	A-7, A-6	0	0	95-100	95-100	85-100	75-95	35-50	15-30
	14-60	Silty clay, silty clay loam, clay	CL	A-7, A-6	0	0-5	90-100	85-100	75-100	65-95	30-50	10-30
84F:												
Macmeal, warm	0-8	Gravelly loam	ML, SM	A-4	0	5-15	75-85	65-75	55-70	40-55	25-35	NP-5
	8-33	Very channery clay loam, very gravelly clay loam	GC	A-6, A-2	0	10-30	35-65	25-55	25-55	20-45	30-40	10-15
	33-60	Very channery clay loam, very flaggy clay loam	GC	A-6, A-2	0	15-45	35-70	25-60	25-55	20-50	30-40	10-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
84F: (cont.)												
Macmeal	0-11	Gravelly loam	ML, SM	A-4	0	5-15	75-85	65-75	55-70	40-55	25-35	NP-5
	11-42	Very channery clay loam, very gravelly clay loam	GC	A-6, A-2	0	10-30	35-65	25-55	25-55	20-45	30-40	10-15
	42-60	Very channery clay loam, very flaggy clay loam	GC	A-6, A-2	0	15-45	35-70	25-60	25-55	20-50	30-40	10-15
90A:												
Harlake	0-8	Clay	CL, CH	A-7	0	0	100	100	90-100	75-90	40-65	20-40
	8-50	Stratified clay to silt loam	CL, CH	A-7	0	0	100	100	95-100	85-95	40-70	15-45
	50-60	Stratified silty clay loam to fine sandy loam	CL, CL-ML	A-6, A-4	0	0	100	100	85-95	60-70	20-40	5-15
93A:												
Bowdoin	0-3	Clay	CH	A-7	0	0	100	100	90-100	80-95	60-85	30-55
	3-31	Clay	CH	A-7	0	0	100	100	90-100	80-95	60-85	30-55
	31-60	Clay	CH	A-7	0	0	100	100	90-100	80-95	55-80	30-50
94C:												
Busby	0-3	Fine sandy loam	SM	A-4	0	0	100	100	60-85	35-50	20-25	NP-5
	3-11	Fine sandy loam, sandy loam, loam	SM, ML	A-4	0	0	100	100	60-90	35-75	20-25	NP-5
	11-31	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	60-85	35-50	20-25	NP-5
	31-60	Loamy fine sand, loamy sand, fine sandy loam	SM	A-2, A-4	0	0	100	100	60-85	20-50	15-25	NP-5

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
94D:												
Busby	0-3	Fine sandy loam	SM	A-4	0	0	100	100	60-85	35-50	20-25	NP-5
	3-11	Fine sandy loam, sandy loam, loam	SM, ML	A-4	0	0	100	100	60-90	35-75	20-25	NP-5
	11-31	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	60-85	35-50	20-25	NP-5
	31-60	Loamy fine sand, loamy sand, fine sandy loam	SM	A-2, A-4	0	0	100	100	60-85	20-50	15-25	NP-5
96D:												
Megonot	0-4	Silty clay loam	CL	A-6, A-7	0	0	95-100	85-100	85-100	75-100	35-45	15-25
	4-14	Silty clay loam, clay loam, silty clay	CL	A-6, A-7	0	0	85-100	75-100	75-90	65-90	35-45	15-25
	14-28	Silty clay loam, clay loam, shaly silty clay	CL, GC	A-6, A-7	0	0	65-100	55-100	45-90	40-90	35-45	15-25
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Kobase	0-6	Silty clay loam	CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	6-16	Silty clay loam, silty clay, clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	15-25
	16-60	Silty clay loam, silty clay, clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	15-25
97D:												
Neldore	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
97D: (cont.)												
Bascovy	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
100A:												
Hanly	0-3	Fine sandy loam	SM, ML, CL-ML, SC-SM	A-4	0	0	100	100	70-85	40-55	15-25	NP-5
	3-60	Stratified fine sandy loam to sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-85	5-25	---	NP
101E:												
Barkof	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-90	45-60	20-30
	4-29	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-90	45-65	25-45
	29-33	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Windham	0-5	Gravelly loam	GM, GM-GC, SM, ML	A-4, A-2, A-1	0	0-20	30-80	25-75	20-60	15-55	20-30	NP-10
	5-11	Gravelly clay loam, very gravelly loam, clay loam	GM-GC, SC-SM, CL-ML, GC	A-4, A-6, A-2	0	0-25	40-90	35-85	30-65	25-60	20-35	5-15
	11-25	Very gravelly loam, extremely gravelly clay loam, extremely gravelly sandy loam	GM, GM-GC	A-2, A-1	0	0-30	25-50	20-50	15-40	10-35	20-30	NP-10
	25-60	Extremely gravelly loam, extremely gravelly sandy loam, extremely gravelly clay loam	GM, GM-GC, GP-GM	A-1, A-2	0	10-30	25-50	15-30	10-25	5-20	15-30	NP-10

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
110C:												
Attewan---------	0-6	Loam	ML, CL-ML	A-4	0	0-5	85-100	80-100	70-90	55-75	20-30	NP-10
	6-17	Clay loam, sandy clay loam, gravelly loam	CL, SC	A-6	0	0-5	75-100	70-100	55-85	35-70	30-40	10-20
	17-29	Clay loam, gravelly loam, sandy clay loam	CL, SC, GC	A-6	0	0-5	70-100	65-100	50-85	35-65	30-40	10-20
	29-60	Very gravelly loamy sand, extremely gravelly loamy sand, very gravelly sand	GP, GP-GM, GM, SM	A-1	0	0-15	25-55	15-50	5-20	0-15	---	NP
Beaverell-------	0-4	Gravelly loam	SM, GM, ML, CL-ML	A-4	0	0-15	70-85	60-75	45-65	40-60	20-30	NP-10
	4-13	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, GM-GC	A-2	0	0-25	40-60	30-50	20-45	15-35	25-40	5-15
	13-60	Stratified very gravelly loamy sand to extremely gravelly sand	GM, SM, GP-GM, SP-SM	A-1	0	10-40	35-65	25-55	10-45	5-15	---	NP
115F:												
Silverchief-----	0-8	Loam	ML, CL-ML	A-4	0	0-5	100	90-100	75-95	55-75	20-30	NP-10
	8-21	Clay, silty clay, clay loam	CL	A-7, A-6	0	0-5	95-100	90-95	85-90	80-90	35-50	15-30
	21-32	Gravelly clay, gravelly silty clay	CL, CH	A-7	0	5-10	75-90	55-75	50-70	50-65	40-60	20-40
	32-60	Very gravelly sandy clay loam, very gravelly clay loam	GC	A-6, A-2	0-5	15-20	45-70	35-60	30-50	15-45	25-40	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
115F: (cont.)												
Whitecow, warm--	0-4	Gravelly loam	CL-ML, ML, GM, SM	A-4	0	0-15	70-85	60-75	50-70	40-60	20-30	NP-10
	4-22	Very gravelly loam, very cobbly clay loam, extremely channery loam	GM-GC, GC	A-4, A-6, A-2	0	15-35	35-70	25-60	20-55	15-50	20-35	5-15
	22-60	Extremely gravelly loam, extremely cobbly clay loam, extremely channery loam	GM-GC, GC	A-2	0	25-55	25-45	15-35	10-30	10-30	20-35	5-15
Macmeal---------	0-11	Gravelly loam	ML, SM	A-4	0	5-15	75-85	65-75	55-70	40-55	25-35	NP-5
	11-42	Very channery clay loam, very gravelly clay loam	GC	A-6, A-2	0	10-30	35-65	25-55	25-55	20-45	30-40	10-15
	42-60	Very channery clay loam, very flaggy clay loam	GC	A-6, A-2	0-5	15-40	35-70	25-60	25-55	20-50	30-40	10-15
120F:												
Mocmont, cool---	0-9	Gravelly loam	CL-ML, GM-GC	A-4	0	0-10	60-80	55-75	45-70	35-60	25-30	5-10
	9-16	Very gravelly loam	GM-GC	A-2, A-4	0	10-15	40-65	30-55	25-50	20-45	20-30	5-10
	16-45	Extremely gravelly loam, extremely gravelly clay loam, extremely cobbly sandy clay loam	GM-GC, GC, GP-GC	A-2	0	30-45	20-45	10-40	5-30	5-30	25-35	5-15
	45-60	Extremely cobbly loam, extremely flaggy sandy loam	GM, GM-GC, GP-GM	A-2, A-1	0	45-60	20-45	10-40	5-30	5-30	20-30	NP-10

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
120F: (cont.)												
Mocmont	0-12	Very gravelly sandy loam	GM	A-1	0	5-20	45-60	35-50	20-35	10-20	20-25	NP-5
	12-23	Very gravelly loam	GM-GC	A-2, A-4	0	10-15	40-65	30-55	25-50	20-45	20-30	5-10
	23-46	Extremely gravelly loam, extremely gravelly clay loam, extremely cobbly sandy clay loam	GM-GC, GC, GP-GC	A-2	0	30-45	20-45	10-40	5-30	5-30	25-35	5-15
	46-60	Extremely cobbly loam, extremely flaggy sandy loam	GM, GM-GC, GP-GM	A-2, A-1	0	45-60	20-45	10-40	5-30	5-30	20-30	NP-10
121F:												
Mocmont	0-12	Very gravelly sandy loam	GM	A-1	0	5-20	45-60	35-50	20-35	10-20	20-25	NP-5
	12-23	Very gravelly loam	GM-GC	A-2, A-4	0	10-15	40-65	30-55	25-50	20-45	20-30	5-10
	23-46	Extremely gravelly loam, extremely gravelly clay loam, extremely cobbly sandy clay loam	GM-GC, GC, GP-GC	A-2	0	30-45	20-45	10-40	5-30	5-30	25-35	5-15
	46-60	Extremely cobbly loam, extremely flaggy sandy loam	GM, GM-GC, GP-GM	A-2, A-1	0	45-60	20-45	10-40	5-30	5-30	20-30	NP-10

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
121F: (cont.)												
Mocmont, cool---	0-9	Gravelly loam	CL-ML, GM-GC	A-4	0	0-10	60-80	55-75	45-70	35-60	25-30	5-10
	9-16	Very gravelly loam	GM-GC	A-2, A-4	0	10-15	40-65	30-55	25-50	20-45	20-30	5-10
	16-45	Extremely gravelly loam, extremely gravelly clay loam, extremely cobbly sandy clay loam	GM-GC, GC, GP-GC	A-2	0	30-45	20-45	10-40	5-30	5-30	25-35	5-15
	45-60	Extremely cobbly loam, extremely flaggy sandy loam	GM, GM-GC, GP-GM	A-2, A-1	0	45-60	20-45	10-40	5-30	5-30	20-30	NP-10
Tolex----------	0-5	Channery loam	SC-SM, GM-GC	A-4	0	0-5	55-80	50-75	45-70	35-50	25-30	5-10
	5-18	Extremely channery clay loam	GC, GP-GC	A-2	0	0-10	15-30	10-25	5-25	5-20	30-35	10-15
	18-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	NP
122F:												
Mocmont, cool---	0-9	Very cobbly loam	GM, GM-GC	A-4, A-2	0	20-30	50-70	40-60	35-55	25-45	20-30	NP-10
	9-41	Extremely gravelly loam, extremely gravelly clay loam, extremely cobbly sandy clay loam	GM-GC, GC, GP-GC	A-2	0	30-45	15-45	10-35	10-30	5-25	25-35	5-15
	41-60	Extremely cobbly loam, extremely flaggy sandy loam, extremely channery loam	GM, GM-GC, GP-GM	A-1, A-2	0	30-50	15-45	10-35	10-30	5-25	20-30	NP-10

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
122F: (cont.)												
Landusky--------	0-9	Extremely cobbly loam	GM-GC, GC	A-2	0-5	30-45	25-45	20-35	15-35	10-25	20-30	5-10
	9-60	Fragmental material	GP	A-1	0-5	30-45	5-15	0-10	0-5	0-5	---	NP
130F:												
Rubble land.												
Mocmont, cool---	0-9	Very cobbly loam	GM, GM-GC	A-4, A-2	0	20-30	50-70	40-60	35-55	25-45	20-30	NP-10
	9-41	Extremely gravelly loam, extremely gravelly clay loam, extremely cobbly sandy clay loam	GM-GC, GC, GP-GC	A-2	0	30-45	15-45	10-35	10-30	5-25	25-35	5-15
	41-60	Extremely cobbly loam, extremely flaggy sandy loam, extremely channery loam	GM, GM-GC, GP-GM	A-1, A-2	0	30-50	15-45	10-35	10-30	5-25	20-30	NP-10
Rock outcrop.												
139F:												
Whitecow, warm--	0-4	Gravelly loam	CL-ML, ML, GM, SM	A-4	0	0-15	70-85	60-75	50-70	40-60	20-30	NP-10
	4-22	Very gravelly loam, very cobbly clay loam, extremely channery loam	GM-GC, GC	A-4, A-6, A-2	0	15-35	35-70	25-60	20-55	15-50	20-35	5-15
	22-60	Extremely gravelly loam, extremely cobbly clay loam, extremely channery loam	GM-GC, GC	A-2	0	25-55	25-45	15-35	10-30	10-30	20-35	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
139F: (cont.)												
Warneke---------	0-3	Gravelly loam	CL-ML, SC-SM, GM-GC	A-4	0	0-15	65-85	55-75	45-70	35-55	25-30	5-10
	3-15	Very gravelly loam, very channery loam, extremely gravelly loam	GM-GC	A-2	0	15-30	25-45	20-40	15-35	10-30	25-30	5-10
	15-19	Unweathered bedrock	---	---	---	---	---	---	---	---	---	NP
140F:												
Whitecow--------	0-8	Gravelly loam	CL-ML, ML, GM, SM	A-4	0	0-15	70-85	60-75	50-70	40-60	20-30	NP-10
	8-32	Very gravelly loam, very cobbly clay loam, extremely channery loam	GM-GC, GC	A-4, A-6, A-2	0	15-35	35-70	25-60	20-55	15-50	20-35	5-15
	32-60	Extremely gravelly loam, extremely cobbly clay loam, extremely channery loam	GM-GC, GC	A-2	0	25-55	25-45	15-35	10-30	10-30	20-35	5-15
Whitecow, warm--	0-4	Gravelly loam	CL-ML, ML, GM, SM	A-4	0	0-15	70-85	60-75	50-70	40-60	20-30	NP-10
	4-22	Very gravelly loam, very cobbly clay loam, extremely channery loam	GM-GC, GC	A-4, A-6, A-2	0	15-35	35-70	25-60	20-55	15-50	20-35	5-15
	22-60	Extremely gravelly loam, extremely cobbly clay loam, extremely channery loam	GM-GC, GC	A-2	0	25-55	25-45	15-35	10-30	10-30	20-35	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
151F:												
Warneke----------	0-3	Gravelly loam	CL-ML, SC-SM, GM-GC	A-4	0	0-15	65-85	55-75	45-70	35-55	25-30	5-10
	3-15	Very gravelly loam, very channery loam, extremely gravelly loam	GM-GC	A-2	0	15-30	25-45	20-40	15-35	10-30	25-30	5-10
	15-19	Unweathered bedrock	---	---	---	---	---	---	---	---	---	NP
Whitecow, warm--	0-4	Gravelly loam	CL-ML, ML, GM, SM	A-4	0	0-15	70-85	60-75	50-70	40-60	20-30	NP-10
	4-22	Very gravelly loam, very cobbly clay loam, extremely channery loam	GM-GC, GC	A-4, A-6, A-2	0	15-35	35-70	25-60	20-55	15-50	20-35	5-15
	22-60	Extremely gravelly loam, extremely cobbly clay loam, extremely channery loam	GM-GC, GC	A-2	0	25-55	25-45	15-35	10-30	10-30	20-35	5-15
Rock outcrop.												
160D:												
Whitecow, warm--	0-4	Gravelly loam	CL-ML, ML, GM, SM	A-4	0	0-15	70-85	60-75	50-70	40-60	20-30	NP-10
	4-22	Very gravelly loam, very cobbly clay loam, extremely channery loam	GM-GC, GC	A-4, A-6, A-2	0	15-35	35-70	25-60	20-55	15-50	20-35	5-15
	22-60	Extremely gravelly loam, extremely cobbly clay loam, extremely channery loam	GM-GC, GC	A-2	0	25-55	25-45	15-35	10-30	10-30	20-35	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
160E:												
Whitecow, warm--	0-4	Gravelly loam	CL-ML, ML, GM, SM	A-4	0	0-15	70-85	60-75	50-70	40-60	20-30	NP-10
	4-22	Very gravelly loam, very cobbly clay loam, extremely channery loam	GM-GC, GC	A-4, A-6, A-2	0	15-35	35-70	25-60	20-55	15-50	20-35	5-15
	22-60	Extremely gravelly loam, extremely cobbly clay loam, extremely channery loam	GM-GC, GC	A-2	0	25-55	25-45	15-35	10-30	10-30	20-35	5-15
170A:												
Dimmick---------	0-18	Clay	CH, CL	A-7	0	0	100	100	90-100	75-95	40-70	15-40
	18-60	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-70	20-45
180B:												
Binna----------	0-8	Loam	CL-ML	A-4	0	0-5	90-100	80-100	70-95	60-80	20-30	5-10
	8-20	Loam, gravelly loam, gravelly sandy loam	SC-SM, GM-GC	A-4	0	0-15	65-100	60-95	50-90	35-50	20-30	5-10
	20-60	Very gravelly loamy sand, extremely gravelly loamy sand	GM, SM, GP-GM, SP-SM	A-1	0	0-15	30-70	20-50	15-35	5-15	---	NP
Saypo----------	0-8	Clay loam	CL, CL-ML	A-6, A-4	0	0	100	90-100	80-95	75-90	25-35	5-15
	8-12	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-90	65-80	25-35	5-15
	12-30	Clay loam, loam, gravelly loam	CL, CL-ML, GM-GC, SC-SM	A-4, A-6	0	0-10	65-95	55-90	45-75	35-65	25-35	5-15
	30-60	Clay loam, gravelly clay loam, very gravelly loam	CL, CL-ML, GC, GM-GC	A-2, A-4, A-6, A-7	0	0-15	50-95	40-90	35-75	25-65	25-45	5-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
190B:												
Nesda	0-16	Gravelly loam	ML, SM, GM	A-2, A-4	0	0-5	60-80	55-75	40-65	25-55	15-25	NP-5
	16-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand	GP, GM, GP-GM, SP-SM	A-1	0	0-25	25-60	15-50	5-40	0-20	---	NP
Nesda, cool	0-12	Very gravelly sandy loam	GM	A-1	0	0-10	35-60	30-50	20-35	10-20	15-25	NP-5
	12-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand	GP, GM, GP-GM, SP-SM	A-1	0	0-25	25-60	15-50	5-35	0-15	---	NP
200F:												
Mined land.												
201D:												
Cabba	0-4	Loam	ML, CL-ML	A-4	0	0-5	90-100	85-100	70-90	60-80	20-30	NP-10
	4-14	Clay loam, silty clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	95-100	90-100	85-100	80-95	25-35	5-15
	14-18	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
201D:(cont.)												
Windham---------	0-5	Gravelly loam	GM, GM-GC, SM, ML	A-4, A-2, A-1	0	0-20	30-80	25-75	20-60	15-55	20-30	NP-10
	5-11	Gravelly clay loam, very gravelly loam, clay loam	GM-GC, SC-SM, CL-ML, GC	A-4, A-6, A-2	0	0-25	40-90	35-85	30-65	25-60	20-35	5-15
	11-25	Very gravelly loam, extremely gravelly clay loam, extremely gravelly sandy loam	GM, GM-GC	A-2, A-1	0	0-30	25-50	20-50	15-40	10-35	20-30	NP-10
	25-60	Extremely gravelly loam, extremely gravelly sandy loam, extremely gravelly clay loam	GM, GM-GC, GP-GM	A-1, A-2	0	10-30	25-50	15-30	10-25	5-20	15-30	NP-10
211B:												
Thoeny----------	0-6	Loam	CL	A-6	0	0-5	95-100	85-95	85-95	65-75	25-35	10-15
	6-14	Clay, clay loam	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	75-95	35-55	15-30
	14-25	Clay loam, clay	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	70-80	35-55	15-30
	25-60	Clay loam, clay	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	70-80	35-55	15-30
Absher----------	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
212B:												
Thoeny----------	0-6	Loam	CL	A-6	0	0-5	95-100	85-95	85-95	65-75	25-35	10-15
	6-14	Clay, clay loam	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	75-95	35-55	15-30
	14-25	Clay loam, clay	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	70-80	35-55	15-30
	25-60	Clay loam, clay	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	70-80	35-55	15-30

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
212B: (cont.)												
Elloam----------	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
220E:												
Hillon----------	0-4	Cobbly loam	CL-ML	A-4	0	15-35	80-95	75-90	65-85	50-70	25-30	5-10
	4-28	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	28-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
Joplin----------	0-4	Cobbly loam	CL-ML, CL	A-4, A-6	0-10	15-30	70-95	75-90	65-85	50-70	25-35	5-15
	4-8	Loam, clay loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-75	30-40	10-20
	8-26	Loam, clay loam, gravelly loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
	26-60	Loam, clay loam, gravelly loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
221D:												
Hillon----------	0-3	Gravelly loam	GC, GM-GC, CL-ML, CL	A-4, A-6	0	0-5	60-80	55-75	45-70	35-55	20-35	5-15
	3-32	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	32-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
Kevin----------	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-75	60-75	45-70	40-60	30-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-28	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	28-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
221E:												
Hillon----------	0-3	Gravelly loam	GC, GM-GC, CL-ML, CL	A-4, A-6	0	0-5	60-80	55-75	45-70	35-55	20-35	5-15
	3-32	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	32-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
Kevin----------	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-75	60-75	45-70	40-60	30-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-28	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	28-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
224D:												
Hillon	0-3	Gravelly loam	GC, GM-GC, CL-ML, CL	A-4, A-6	0	0-5	60-80	55-75	45-70	35-55	20-35	5-15
	3-32	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	32-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
Joplin	0-4	Gravelly loam	CL-ML, ML, GM-GC, GM	A-4, A-2	0	0-5	60-85	55-75	45-70	30-55	25-35	5-10
	4-9	Loam, clay loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-75	30-40	10-15
	9-30	Loam, gravelly loam	CL-ML, CL, GM-GC, GC	A-4, A-6, A-2	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
	30-60	Loam, gravelly loam	CL-ML, CL, GM-GC, GC	A-4, A-6, A-2	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
241B:												
Benz	0-3	Clay loam	CL	A-6	0	0	100	100	90-100	70-80	30-35	10-15
	3-60	Stratified clay loam to sandy loam	CL-ML, CL	A-4, A-6	0	0	100	100	80-95	50-75	25-35	5-15
Vanda	0-4	Clay	CL, CH	A-7	0	0	100	100	95-100	75-95	40-65	20-45
	4-9	Clay, silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	80-95	35-65	15-45
	9-60	Clay, silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	80-95	35-65	15-45
250E:												
Bascovy	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Neldore	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
250E: (cont.)												
Weingart, thin--	0-7	Clay	CL	A-7	0	0	90-100	90-100	80-100	65-90	40-50	15-25
	7-9	Clay, silty clay	CL, CH	A-7	0	0	90-100	90-100	80-100	75-95	40-65	20-40
	9-17	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	75-100	70-90	35-60	15-35
	17-36	Shaly clay, silty clay, clay loam	CL, CH, SC, GC	A-6, A-7	0	0	60-95	55-90	50-85	45-80	35-60	15-35
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
251C:												
Bascovy---------	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Neldore---------	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
270E:												
Beaverell-------	0-4	Gravelly loam	SM, GM, ML, CL-ML	A-4	0	0-15	70-85	60-75	45-65	40-60	20-30	NP-10
	4-13	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, GM-GC	A-2	0	0-25	40-60	30-50	20-45	15-35	25-40	5-15
	13-60	Stratified very gravelly loamy sand to extremely gravelly sand	GM, SM, GP-GM, SP-SM	A-1	0	10-40	35-65	25-55	10-45	5-15	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
270E: (cont.)												
Tinsley---------	0-4	Gravelly sandy loam	SM	A-2, A-1	0	0-10	70-90	55-75	35-55	15-35	15-20	NP-5
	4-60	Very gravelly sand, very cobbly loamy sand, extremely gravelly sand	GM, SM, SP-SM, GP-GM	A-1	0-5	10-35	40-70	25-55	10-35	5-15	---	NP
271D:												
Beaverell-------	0-4	Gravelly loam	SM, GM, ML, CL-ML	A-4	0	0-15	70-85	60-75	45-65	40-60	20-30	NP-10
	4-13	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, GM-GC	A-2	0	0-25	40-60	30-50	20-45	15-35	25-40	5-15
	13-60	Stratified very gravelly loamy sand to extremely gravelly sand	GM, SM, GP-GM, SP-SM	A-1	0	10-40	35-65	25-55	10-45	5-15	---	NP
Evanston--------	0-5	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	85-90	65-70	25-35	5-15
	5-12	Clay loam, loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	12-24	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	24-60	Loam, clay loam, fine sandy loam	CL	A-6	0	0-5	95-100	95-100	70-90	50-75	25-35	10-15
301C:												
Marvan, saline--	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-70	25-50
	4-10	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
	10-60	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
Marvan----------	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-70	25-50
	4-19	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
	19-60	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
302B:												
Marvan, saline--	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-70	25-50
	4-10	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
	10-60	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
Vanda----------	0-4	Clay	CL, CH	A-7	0	0	100	100	95-100	75-95	40-65	20-45
	4-9	Clay, silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	80-95	35-65	15-45
	9-60	Clay, silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	100	100	95-100	80-95	35-65	15-45
311B:												
Ferd----------	0-6	Loam	CL-ML, CL	A-4	0	0	100	95-100	80-95	55-75	25-30	5-10
	6-13	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0	100	95-100	85-100	70-90	35-50	15-30
	13-22	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	85-100	70-90	30-40	10-20
	22-60	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	85-100	70-90	30-40	10-20
Gerdrum---------	0-3	Clay loam	CL	A-6	0	0	80-100	75-100	65-95	60-90	25-40	10-20
	3-12	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	12-23	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	23-60	Clay loam, sandy clay loam, clay	CL, SC, CH	A-6, A-7	0	0	90-100	90-100	80-95	45-75	35-55	15-35

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
312B:												
Ferd	0-6	Loam	CL-ML, CL	A-4	0	0	100	95-100	80-95	55-75	25-30	5-10
	6-13	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0	100	95-100	85-100	70-90	35-50	15-30
	13-22	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	85-100	70-90	30-40	10-20
	22-60	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	85-100	70-90	30-40	10-20
Absher	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
320A:												
Kobase	0-6	Silty clay	CL	A-7	0	0	95-100	90-100	85-100	80-95	40-50	20-25
	6-24	Silty clay, clay, silty clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	75-95	35-50	15-25
	24-60	Silty clay loam, clay loam	CL	A-6, A-7	0	0	95-100	90-100	80-95	65-90	30-45	10-20
322C:												
Kobase	0-6	Silty clay loam	CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	6-16	Silty clay loam, silty clay, clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	15-25
	16-60	Silty clay loam, silty clay, clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	15-25

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
322C: (cont.)												
Megonot	0-4	Silty clay loam	CL	A-6, A-7	0	0	95-100	85-100	85-100	75-100	35-45	15-25
	4-14	Silty clay loam, clay loam, silty clay	CL	A-6, A-7	0	0	85-100	75-100	75-90	65-90	35-45	15-25
	14-28	Silty clay loam, clay loam, shaly silty clay	CL, GC	A-6, A-7	0	0	65-100	55-100	45-90	40-90	35-45	15-25
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
323B:												
Kobase	0-6	Silty clay loam	CL	A-7, A-6	0	0	95-100	90-100	85-100	80-95	30-45	10-20
	6-16	Silty clay loam, silty clay, clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	15-25
	16-60	Silty clay loam, silty clay, clay	CL	A-7, A-6	0	0	95-100	90-100	85-100	75-95	35-45	15-25
Marvan	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-70	25-50
	4-19	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
	19-60	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
Weingart, thin	0-7	Clay	CL	A-7	0	0	90-100	90-100	80-100	65-90	40-50	15-25
	7-9	Clay, silty clay	CL, CH	A-7	0	0	90-100	90-100	80-100	75-95	40-65	20-40
	9-17	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	75-100	70-90	35-60	15-35
	17-36	Shaly clay, silty clay, clay loam	CL, CH, SC, GC	A-6, A-7	0	0	60-95	55-90	50-85	45-80	35-60	15-35
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
331B:												
Phillips	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
331B: (cont.)												
Absher	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
331C:												
Phillips	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
Absher	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
332B:												
Phillips	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
Elloam	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
333C:												
Phillips	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
Kevin	0-5	Very gravelly clay loam	GC	A-2	0	0-15	40-55	35-50	25-45	20-35	30-40	10-20
	5-8	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	8-24	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	24-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
334C:												
Phillips--------	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
Kevin-----------	0-6	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	25-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-33	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	33-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
351C:												
Fortbenton------	0-7	Fine sandy loam	SM	A-4	0	0	100	100	70-85	35-50	15-25	NP-5
	7-23	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	70-85	35-50	15-25	NP-5
	23-29	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	70-85	35-50	15-25	NP-5
	29-60	Silty clay loam, clay loam	CL	A-6	0	0	100	100	80-95	70-95	30-40	10-15
373C:												
Evanston--------	0-5	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	85-90	65-70	25-35	5-15
	5-12	Clay loam, loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	12-24	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	24-60	Loam, clay loam, fine sandy loam	CL	A-6	0	0-5	95-100	95-100	70-90	50-75	25-35	10-15
Chinook---------	0-6	Fine sandy loam	SM	A-4, A-2	0	0	80-100	75-100	65-85	30-50	15-25	NP-5
	6-16	Fine sandy loam, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	55-85	30-50	15-25	NP-5
	16-44	Fine sandy loam, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	55-85	30-50	15-25	NP-5
	44-60	Fine sandy loam, loamy fine sand, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	60-80	25-45	15-25	NP-5

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
381B:												
Ethridge	0-6	Clay loam	CL	A-6	0	0	100	95-100	85-100	70-80	25-40	10-20
	6-16	Silty clay, silty clay loam, clay	CL	A-7	0	0	100	95-100	95-100	90-95	40-50	20-30
	16-44	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	35-50	15-30
	44-60	Silty clay loam, clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	30-50	10-25
Gerdrum	0-3	Clay loam	CL	A-6	0	0	80-100	75-100	65-95	60-90	25-40	10-20
	3-12	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	12-23	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	23-60	Clay loam, sandy clay loam, clay	CL, SC, CH	A-6, A-7	0	0	90-100	90-100	80-95	45-75	35-55	15-35
383C:												
Ethridge	0-6	Clay loam	CL	A-6	0	0	100	95-100	85-100	70-80	25-40	10-20
	6-16	Silty clay, silty clay loam, clay	CL	A-7	0	0	100	95-100	95-100	90-95	40-50	20-30
	16-44	Clay loam, silty clay loam, clay	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	35-50	15-30
	44-60	Silty clay loam, clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	30-50	10-25

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
383C: (cont.)												
Beaverell-------	0-4	Gravelly loam	SM, GM, ML, CL-ML	A-4	0	0-15	70-85	60-75	45-65	40-60	20-30	NP-10
	4-13	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GC, GM-GC	A-2	0	0-25	40-60	30-50	20-45	15-35	25-40	5-15
	13-60	Stratified very gravelly loamy sand to extremely gravelly sand	GM, SM, GP-GM, SP-SM	A-1	0	10-40	35-65	25-55	10-45	5-15	---	NP
391B:												
Creed-----------	0-8	Loam	CL-ML, SC-SM	A-4	0	0	90-100	75-100	65-95	45-75	20-30	5-10
	8-14	Silty clay, clay, silty clay loam	CL, CH	A-6, A-7	0	0	90-100	75-100	70-100	60-95	35-60	15-35
	14-26	Silty clay loam, clay loam, clay	CL, SC	A-6, A-7	0	0	90-100	75-100	60-100	35-90	30-50	15-25
	26-60	Stratified loam to silty clay loam	CL	A-6, A-7	0	0	90-100	75-100	65-100	50-90	30-45	10-20
Absher----------	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
392B:												
Creed-----------	0-8	Loam	CL-ML, SC-SM	A-4	0	0	90-100	75-100	65-95	45-75	20-30	5-10
	8-14	Silty clay, clay, silty clay loam	CL, CH	A-6, A-7	0	0	90-100	75-100	70-100	60-95	35-60	15-35
	14-26	Silty clay loam, clay loam, clay	CL, SC	A-6, A-7	0	0	90-100	75-100	60-100	35-90	30-50	15-25
	26-60	Stratified loam to silty clay loam	CL	A-6, A-7	0	0	90-100	75-100	65-100	50-90	30-45	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
392B:(cont.)												
Gerdrum	0-3	Clay loam	CL	A-6	0	0	80-100	75-100	65-95	60-90	25-40	10-20
	3-12	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	12-23	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	23-60	Clay loam, sandy clay loam, clay	CL, SC, CH	A-6, A-7	0	0	90-100	90-100	80-95	45-75	35-55	15-35
402B:												
Gerdrum	0-3	Clay loam	CL	A-6	0	0	80-100	75-100	65-95	60-90	25-40	10-20
	3-12	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	12-23	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	23-60	Clay loam, sandy clay loam, clay	CL, SC, CH	A-6, A-7	0	0	90-100	90-100	80-95	45-75	35-55	15-35
Absher	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
421C:												
Joplin	0-4	Loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	85-90	60-75	25-35	5-10
	4-8	Loam, clay loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-75	30-40	10-15
	8-29	Loam, gravelly loam, clay loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
	29-60	Loam, gravelly loam, clay loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
Hillon	0-3	Loam	ML, CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	80-90	65-75	20-35	NP-15
	3-26	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	26-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
424D:												
Joplin	0-4	Loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	85-90	60-75	25-35	5-10
	4-8	Loam, clay loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-75	30-40	10-15
	8-29	Loam, gravelly loam, clay loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
	29-60	Loam, gravelly loam, clay loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
Telstad	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-90	50-70	25-30	5-10
	6-14	Clay loam, loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-80	30-40	10-20
	14-38	Clay loam, loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	80-95	60-80	25-35	5-15
	38-60	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	75-90	55-75	25-35	5-15
426C:												
Joplin	0-4	Gravelly loam	CL-ML, ML, GM-GC, GM	A-4, A-2	0	0-5	60-85	55-75	45-70	30-55	25-35	5-10
	4-9	Loam, clay loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-75	30-40	10-15
	9-30	Loam, gravelly loam	CL-ML, CL, GM-GC, GC	A-4, A-6, A-2	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
	30-60	Loam, gravelly loam	CL-ML, CL, GM-GC, GC	A-4, A-6, A-2	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
Hillon	0-3	Gravelly loam	GC, GM-GC, CL-ML, CL	A-4, A-6	0	0-5	60-80	55-75	45-70	35-55	20-35	5-15
	3-32	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	32-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
442C:												
Kevin	0-6	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	25-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-33	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	33-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
Hillon	0-3	Loam	ML, CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	80-90	65-75	20-35	NP-15
	3-26	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	26-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
444C:												
Kevin	0-6	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	25-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-33	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	33-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
444C: (cont.)												
Sunburst--------	0-4	Clay loam	CL	A-6	0	0-10	95-100	85-95	85-95	75-85	30-40	10-20
	4-28	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	28-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
446D:												
Kevin----------	0-5	Very gravelly clay loam	GC	A-2	0	0-15	40-55	35-50	25-45	20-35	30-40	10-20
	5-8	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	8-24	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	24-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
Sunburst--------	0-3	Very gravelly clay loam	GC	A-2	0	0-15	35-55	30-50	25-45	20-35	30-40	10-20
	3-26	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	26-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
481A:												
Bigsag----------	0-3	Clay	CL, CH	A-7	0	0	100	100	95-100	90-95	40-60	20-40
	3-9	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	100	90-100	75-95	40-60	20-40
	9-60	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	100	90-100	75-95	40-60	20-40
502C:												
Telstad---------	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-90	50-70	25-30	5-10
	6-14	Clay loam, loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-80	30-40	10-20
	14-38	Clay loam, loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	80-95	60-80	25-35	5-15
	38-60	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	75-90	55-75	25-35	5-15
Elloam----------	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
503C:												
Telstad	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-90	50-70	25-30	5-10
	6-14	Clay loam, loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-80	30-40	10-20
	14-38	Clay loam, loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	80-95	60-80	25-35	5-15
	38-60	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	75-90	55-75	25-35	5-15
Joplin	0-4	Loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	85-90	60-75	25-35	5-10
	4-8	Loam, clay loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-75	30-40	10-15
	8-29	Loam, gravelly loam, clay loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
	29-60	Loam, gravelly loam, clay loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
504C:												
Telstad	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-90	50-70	25-30	5-10
	6-14	Clay loam, loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-80	30-40	10-20
	14-38	Clay loam, loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	80-95	60-80	25-35	5-15
	38-60	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	75-90	55-75	25-35	5-15
Absher	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
505C:												
Telstad	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-90	50-70	25-30	5-10
	6-14	Clay loam, loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-80	30-40	10-20
	14-38	Clay loam, loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	80-95	60-80	25-35	5-15
	38-60	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	75-90	55-75	25-35	5-15
Hillon	0-3	Loam	ML, CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	80-90	65-75	20-35	NP-15
	3-26	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	26-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
511B:												
Martinsdale-----	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	70-85	50-75	25-30	5-10
	6-13	Sandy clay loam, clay loam, loam	CL, SC	A-6	0	0-5	85-100	80-100	65-90	40-70	30-35	10-15
	13-44	Sandy clay loam, clay loam, loam	CL, CL-ML, SC-SM, SC	A-4, A-6	0	0-5	85-100	80-100	60-90	35-70	25-35	5-15
	44-60	Gravelly sandy loam, gravelly sandy clay loam, very gravelly loam	SM, GM	A-4, A-2, A-1	0	0-10	45-80	35-70	25-60	15-50	25-35	NP-10
Judith----------	0-6	Loam	ML, CL-ML	A-4	0	0-5	90-100	80-100	65-90	55-75	20-30	NP-10
	6-11	Clay loam, gravelly loam, gravelly clay loam	CL-ML, CL, SC-SM, GM-GC	A-4, A-6	0	0-15	65-100	60-95	50-85	35-70	20-35	5-15
	11-31	Clay loam, gravelly loam, gravelly clay loam	CL-ML, CL, SC-SM, GM-GC	A-4, A-6	0	0-15	65-100	60-95	50-85	35-70	20-35	5-15
	31-60	Extremely gravelly loam, extremely gravelly sandy clay loam, very gravelly clay loam	GC, GM-GC, GP-GC	A-2, A-4, A-6	0	15-30	20-65	15-60	10-55	5-50	20-35	5-15
521B:												
Elloam----------	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
Absher----------	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
561B:												
Scobey----------	0-6	Clay loam	CL	A-6	0	0-5	85-100	75-95	70-90	65-80	25-40	10-20
	6-16	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	16-35	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	35-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
Phillips--------	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
562C:												
Scobey----------	0-6	Clay loam	CL	A-6	0	0-5	85-100	75-95	70-90	65-80	25-40	10-20
	6-16	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	16-35	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	35-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
Elloam----------	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
563C:												
Scobey----------	0-6	Clay loam	CL	A-6	0	0-5	85-100	75-95	70-90	65-80	25-40	10-20
	6-16	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	16-35	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	35-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
Kevin----------	0-6	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	25-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-33	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	33-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
564C:												
Scobey----------	0-6	Clay loam	CL	A-6	0	0-5	85-100	75-95	70-90	65-80	25-40	10-20
	6-16	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	16-35	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	35-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
Kevin----------	0-6	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	25-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-33	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	33-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
564C: (cont.)												
Elloam	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
566C:												
Scobey	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-80	60-75	45-75	40-60	25-40	10-20
	6-14	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	14-32	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	32-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
Kevin	0-5	Very cobbly clay loam	CL, GC, SC	A-6	0-5	35-50	60-80	50-70	45-65	35-55	25-40	10-20
	5-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-30	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	30-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
567C:												
Scobey	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-80	60-75	45-75	40-60	25-40	10-20
	6-14	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	14-32	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	32-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
Elloam	0-7	Gravelly clay loam	CL	A-6	0	0-5	70-80	65-75	60-75	50-70	30-40	10-20
	7-13	Clay, clay loam	CL, CH	A-7	0	0-5	85-100	80-100	70-100	55-85	40-60	20-40
	13-22	Clay loam, clay	CL	A-6, A-7	0	0-5	85-100	80-100	70-100	50-80	35-50	15-25
	22-60	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-100	50-80	30-45	10-20
Absher	0-7	Gravelly clay loam	CL, GC	A-6	0	0-10	65-80	60-75	45-70	35-60	25-40	10-20
	7-10	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	10-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
600:												
Pits, gravel.												

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
601A:												
Havre	0-7	Loam	CL-ML	A-4	0	0	100	100	80-95	60-90	20-30	5-10
	7-60	Stratified fine sandy loam to clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	80-95	60-80	20-35	5-15
Harlake	0-10	Clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-90	30-45	10-20
	10-46	Stratified clay to silt loam	CL, CH	A-7	0	0	100	100	95-100	85-95	40-70	15-45
	46-60	Stratified silty clay loam to fine sandy loam	CL, CL-ML	A-6, A-4	0	0	100	100	85-95	60-75	20-40	5-15
Glendive	0-4	Loam	ML, CL-ML	A-4	0	0	100	100	75-95	65-80	20-30	NP-10
	4-26	Loam, silt loam, sandy loam	ML, SM	A-4	0	0	100	100	65-95	40-70	15-25	NP-5
	26-60	Stratified loamy fine sand to clay loam	SM	A-4, A-2	0	0	95-100	75-100	60-90	25-50	15-25	NP-5
603A:												
Havre	0-6	Clay	CL, CH	A-7, A-6	0	0	100	100	85-100	75-90	35-55	15-30
	6-60	Stratified fine sandy loam to clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	80-95	60-80	20-35	5-15
604A:												
Bullhook	0-4	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	4-14	Stratified fine sandy loam to clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	70-100	50-80	20-35	5-15
	14-60	Stratified fine sandy loam to clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	70-100	50-80	20-35	5-15
610:												
Pits, bentonite.												
650C:												
Yetull	0-8	Loamy fine sand	SM	A-2	0	0-5	95-100	95-100	50-75	10-30	---	NP
	8-60	Loamy coarse sand, sand, loamy sand	SM, SP-SM	A-1, A-3, A-2	0	0-5	95-100	95-100	45-70	5-30	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
650D:												
Yetull	0-8	Loamy fine sand	SM	A-2	0	0-5	95-100	95-100	50-75	10-30	---	NP
	8-60	Loamy coarse sand, sand, loamy sand	SM, SP-SM	A-1, A-3, A-2	0	0-5	95-100	95-100	45-70	5-30	---	NP
731C:												
Judith	0-6	Loam	ML, CL-ML	A-4	0	0-5	90-100	80-100	65-90	55-75	20-30	NP-10
	6-11	Clay loam, gravelly loam, gravelly clay loam	CL-ML, CL, SC-SM, GM-GC	A-4, A-6	0	0-15	65-100	60-95	50-85	35-70	20-35	5-15
	11-31	Clay loam, gravelly loam, gravelly clay loam	CL-ML, CL, SC-SM, GM-GC	A-4, A-6	0	0-15	65-100	60-95	50-85	35-70	20-35	5-15
	31-60	Extremely gravelly loam, extremely gravelly sandy clay loam, very gravelly clay loam	GC, GM-GC, GP-GC	A-2, A-4, A-6	0	15-30	20-65	15-60	10-55	5-50	20-35	5-15
Windham	0-5	Gravelly loam	GM, GM-GC, SM, ML	A-4, A-2, A-1	0	0-20	30-80	25-75	20-60	15-55	20-30	NP-10
	5-11	Gravelly clay loam, very gravelly loam, clay loam	GM-GC, SC-SM, CL-ML, GC	A-4, A-6, A-2	0	0-25	40-90	35-85	30-65	25-60	20-35	5-15
	11-25	Very gravelly loam, extremely gravelly clay loam, extremely gravelly sandy loam	GM, GM-GC	A-2, A-1	0	0-30	25-50	20-50	15-40	10-35	20-30	NP-10
	25-60	Extremely gravelly loam, extremely gravelly sandy loam, extremely gravelly clay loam	GM, GM-GC, GP-GM	A-1, A-2	0	10-30	25-50	15-30	10-25	5-20	15-30	NP-10

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
791E:												
Yamacall, calcareous-----	0-7	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-85	55-75	25-30	5-10
	7-42	Loam, silt loam, clay loam	CL-ML, CL	A-4, A-6	0	0-5	85-100	80-100	60-85	55-75	25-35	5-15
	42-60	Loam, fine sandy loam, silt loam	CL-ML, SM	A-4, A-2	0	0-5	75-100	70-100	50-80	25-55	15-25	NP-10
Yamacall--------	0-3	Loam	CL-ML	A-4	0	0-5	85-100	80-100	60-85	55-75	25-30	5-10
	3-11	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	65-90	60-80	25-35	5-15
	11-60	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	60-85	55-75	25-35	5-15
792C:												
Yamacall, calcareous-----	0-7	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-85	55-75	25-30	5-10
	7-42	Loam, silt loam, clay loam	CL-ML, CL	A-4, A-6	0	0-5	85-100	80-100	60-85	55-75	25-35	5-15
	42-60	Loam, fine sandy loam, silt loam	CL-ML, SM	A-4, A-2	0	0-5	75-100	70-100	50-80	25-55	15-25	NP-10
Yamacall--------	0-3	Loam	CL-ML	A-4	0	0-5	85-100	80-100	60-85	55-75	25-30	5-10
	3-11	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	65-90	60-80	25-35	5-15
	11-60	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	60-85	55-75	25-35	5-15
811A:												
Glendive--------	0-4	Loam	ML, CL-ML	A-4	0	0	100	100	75-95	65-80	20-30	NP-10
	4-26	Loam, silt loam, sandy loam	ML, SM	A-4	0	0	100	100	65-95	40-70	15-25	NP-5
	26-60	Stratified loamy fine sand to clay loam	SM	A-4, A-2	0	0	95-100	75-100	60-90	25-50	15-25	NP-5

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
811A: (cont.)												
Havre	0-6	Loam	CL-ML	A-4	0	0	100	100	80-95	60-90	20-30	5-10
	6-60	Stratified fine sandy loam to clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	80-95	60-80	20-35	5-15
821D:												
Savage	0-3	Clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	75-95	25-40	5-15
	3-14	Clay, silty clay, silty clay loam	CL	A-7, A-6	0	0	95-100	95-100	85-100	75-95	35-50	15-30
	14-60	Silty clay, silty clay loam, clay	CL	A-7, A-6	0	0-5	90-100	85-100	75-100	65-95	30-50	10-30
Farnuf	0-6	Loam	ML, CL-ML	A-4	0	0	80-100	75-100	60-100	55-80	20-30	NP-10
	6-19	Clay loam, loam, silty clay loam	CL	A-6	0	0	80-100	75-100	65-95	50-90	25-40	10-20
	19-32	Loam, clay loam, silt loam	CL, CL-ML	A-6, A-4	0	0	80-100	75-100	65-95	50-80	25-35	5-15
	32-60	Stratified gravelly sandy loam to silty clay loam	CL, SC, CL-ML, SC-SM	A-6, A-4	0	0-15	75-90	65-85	50-80	45-60	20-30	5-15
860C:												
Weingart	0-4	Clay loam	CL	A-6, A-7	0	0	90-100	90-100	65-90	60-85	30-45	10-25
	4-12	Clay, silty clay	CL, CH	A-7	0	0	90-100	90-100	80-100	75-95	40-65	20-40
	12-20	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	75-100	70-90	35-60	15-35
	20-34	Shaly clay, silty clay, clay loam	CL, CH, SC, GC	A-6, A-7	0	0	60-95	55-90	50-85	45-80	35-60	15-35
	34-38	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
860C:(cont.)												
Weingart, thin--	0-7	Clay	CL	A-7	0	0	90-100	90-100	80-100	65-90	40-50	15-25
	7-9	Clay, silty clay	CL, CH	A-7	0	0	90-100	90-100	80-100	75-95	40-65	20-40
	9-17	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	75-100	70-90	35-60	15-35
	17-36	Shaly clay, silty clay, clay loam	CL, CH, SC, GC	A-6, A-7	0	0	60-95	55-90	50-85	45-80	35-60	15-35
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
871B:												
Tamaneen--------	0-7	Clay loam	CL	A-6	0	0-5	85-100	85-100	70-95	65-90	30-40	10-20
	7-16	Silty clay, silty clay loam, clay loam	CL	A-6, A-7	0	0-5	85-100	85-100	75-95	70-90	35-50	15-30
	16-23	Clay loam, silty clay, gravelly silty clay loam	CL	A-6, A-7	0	0-5	75-95	70-90	55-80	50-75	30-50	10-25
	23-38	Very gravelly loam, gravelly clay loam	GM-GC, GC	A-2, A-4, A-6	0	0-15	50-60	45-55	30-50	25-45	25-40	5-15
	38-60	Extremely gravelly sandy loam, extremely gravelly loam	GM, GM-GC, GP-GM	A-1, A-2	0	10-30	25-40	15-30	10-25	5-20	20-30	NP-10
Danvers---------	0-6	Clay loam	CL	A-6	0	0-5	95-100	90-100	75-95	60-80	30-40	10-15
	6-16	Silty clay, clay loam, silty clay loam	CL, CH	A-6, A-7	0	0-5	95-100	90-100	75-100	65-90	35-55	15-30
	16-48	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	90-100	75-100	60-85	35-50	15-25
	48-60	Gravelly clay loam, very gravelly sandy loam, extremely gravelly loam	GM-GC, GC, SC-SM, SC	A-6, A-4, A-2	0	0-15	35-80	25-75	20-65	15-50	25-40	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
901A:												
Lallie	0-16	Clay loam	CL	A-6, A-7	0	0	100	100	95-100	60-95	30-50	10-30
	16-60	Silty clay loam, silty clay	CL, CH, ML, MH	A-6, A-7	0	0	100	95-100	90-100	85-100	35-95	15-60
902A:												
Lostriver	0-6	Clay	CL, CH	A-7	0	0	100	100	85-100	75-95	40-60	20-40
	6-21	Stratified clay loam to clay	CL, CH	A-7, A-6	0	0	100	100	90-100	70-95	35-60	15-40
	21-60	Stratified clay loam to clay	CL, CH	A-7, A-6	0	0	100	100	90-100	70-95	35-60	15-40
Bullhook	0-4	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	25-30	5-10
	4-14	Stratified fine sandy loam to clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	70-100	50-80	20-35	5-15
	14-60	Stratified fine sandy loam to clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	70-100	50-80	20-35	5-15
903A:												
Harlake	0-8	Clay	CL, CH	A-7	0	0	100	100	90-100	75-90	40-65	20-40
	8-50	Stratified clay to silt loam	CL, CH	A-7	0	0	100	100	95-100	85-95	40-70	15-45
	50-60	Stratified silty clay loam to fine sandy loam	CL, CL-ML	A-6, A-4	0	0	100	100	85-95	60-75	20-40	5-15
Lostriver	0-6	Clay	CL, CH	A-7	0	0	100	100	85-100	75-95	40-60	20-40
	6-21	Stratified clay loam to clay	CL, CH	A-7, A-6	0	0	100	100	90-100	70-95	35-60	15-40
	21-60	Stratified clay loam to clay	CL, CH	A-7, A-6	0	0	100	100	90-100	70-95	35-60	15-40
905A:												
Harlake	0-6	Clay loam	CL	A-7, A-6	0	0	100	100	90-100	70-80	30-45	10-20
	6-48	Stratified silty clay to silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-25
	48-60	Stratified silt loam to fine sandy loam	CL-ML	A-4	0	0	100	100	85-95	60-75	20-30	5-10

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
905A: (cont.)												
Havre	0-6	Clay loam	CL	A-6	0	0	100	100	90-95	75-95	30-40	10-20
	6-60	Stratified loam to clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	85-95	60-75	25-40	5-15
921D:												
Sunburst	0-4	Gravelly clay loam	CL, GC	A-6	0	0-10	65-80	60-75	45-70	35-60	25-40	10-20
	4-21	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	21-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
Kevin	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-75	60-75	45-70	40-60	30-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-28	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	28-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
923C:												
Sunburst	0-4	Gravelly clay loam	CL, GC	A-6	0	0-10	65-80	60-75	45-70	35-60	25-40	10-20
	4-21	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	21-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
Kevin	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-75	60-75	45-70	40-60	30-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-28	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	28-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
923F:												
Sunburst	0-3	Gravelly clay	CL, CH	A-7	0	0-10	65-80	60-75	55-70	50-70	40-55	20-30
	3-24	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	24-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
923F:(cont.)												
Kevin	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-75	60-75	45-70	40-60	30-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-28	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	28-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
924E:												
Sunburst	0-3	Gravelly clay	CL, CH	A-7	0	0-10	65-80	60-75	55-70	50-70	40-55	20-30
	3-24	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	24-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
Bascovy	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Neldore	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
925C:												
Sunburst	0-3	Gravelly clay	CL, CH	A-7	0	0-10	65-80	60-75	55-70	50-70	40-55	20-30
	3-24	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	24-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
925C: (cont.)												
Bascovy---	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Weingart, thin--	0-7	Clay	CL	A-7	0	0	90-100	90-100	80-100	65-90	40-50	15-25
	7-9	Clay, silty clay	CL, CH	A-7	0	0	90-100	90-100	80-100	75-95	40-65	20-40
	9-17	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	75-100	70-90	35-60	15-35
	17-36	Shaly clay, silty clay, clay loam	CL, CH, SC, GC	A-6, A-7	0	0	60-95	55-90	50-85	45-80	35-60	15-35
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
926F:												
Sunburst---	0-3	Gravelly clay	CL, CH	A-7	0	0-10	65-80	60-75	55-70	50-70	40-55	20-30
	3-24	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	24-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
Neldore---	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
930A:												
Wheatbelt---	0-6	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-80	40-60
	6-24	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-80	40-60
	24-60	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-80	40-60

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
971F:												
Neldore---------	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Cabbart---------	0-3	Loam	CL-ML	A-4	0	0	90-100	85-100	65-85	55-75	25-30	5-10
	3-16	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	60-90	55-85	25-35	5-15
	16-20	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Tinsley---------	0-4	Gravelly sandy loam	SM	A-2, A-1	0	0-10	70-90	55-75	35-55	15-35	15-20	NP-5
	4-60	Very gravelly sand, very cobbly loamy sand, extremely gravelly sand	GM, SM, SP-SM, GP-GM	A-1	0-5	10-35	40-70	25-55	10-35	5-15	---	NP
973E:												
Neldore, cool---	0-4	Clay	CL, CH	A-7	0	0-10	95-100	90-100	80-100	75-95	40-55	20-30
	4-10	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	75-100	70-95	40-60	20-40
	10-17	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	70-100	65-95	40-60	20-40
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Bascovy---------	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
974F:												
Pinebreaks------	0-3	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-55	20-30
	3-9	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-60	20-40
	9-18	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-60	20-40
	18-22	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Neldore---------	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	80-100	75-95	40-55	20-30
	3-9	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	75-100	70-95	40-60	20-40
	9-13	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	70-100	65-95	40-60	20-40
	13-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
1021E:												
Cabbart---------	0-3	Loam	CL-ML	A-4	0	0	90-100	85-100	65-85	55-75	25-30	5-10
	3-16	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	60-90	55-85	25-35	5-15
	16-20	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Twilight--------	0-4	Fine sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	4-11	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	11-22	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	22-26	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Yawdim----------	0-3	Clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-90	30-45	10-20
	3-17	Silty clay loam, clay loam, clay loam	CL, CH	A-7	0	0	100	100	90-100	70-95	40-60	15-35
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
1022F:												
Hillon----------	0-3	Loam	ML, CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	80-90	65-75	20-35	NP-15
	3-26	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	26-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1022F: (cont.)												
Cabbart	0-3	Loam	CL-ML	A-4	0	0	90-100	85-100	65-85	55-75	25-30	5-10
	3-16	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	60-90	55-85	25-35	5-15
	16-20	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
1030D:												
Marvan	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-70	25-50
	4-19	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
	19-60	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
Gerdrum	0-3	Clay loam	CL	A-6	0	0	80-100	75-100	65-95	60-90	25-40	10-20
	3-12	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	12-23	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	23-60	Clay loam, sandy clay loam, clay	CL, SC, CH	A-6, A-7	0	0	90-100	90-100	80-95	45-75	35-55	15-35
1037D:												
Evanston	0-5	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	85-90	65-70	25-35	5-15
	5-12	Clay loam, loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	12-24	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	24-60	Loam, clay loam, fine sandy loam	CL	A-6	0	0-5	95-100	95-100	70-90	50-75	25-35	10-15
Yamacall	0-3	Loam	CL-ML	A-4	0	0-5	85-100	80-100	60-85	55-75	25-30	5-10
	3-11	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	65-90	60-80	25-35	5-15
	11-60	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	80-100	60-85	55-75	25-35	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1052B:												
Elloam----------	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
Thoeny----------	0-6	Loam	CL	A-6	0	0-5	95-100	85-95	85-95	65-75	25-35	10-15
	6-14	Clay, clay loam	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	75-95	35-55	15-30
	14-25	Clay loam, clay	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	70-80	35-55	15-30
	25-60	Clay loam, clay	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	70-80	35-55	15-30
1059E:												
Weingart--------	0-4	Clay loam	CL	A-6, A-7	0	0	90-100	90-100	65-90	60-85	30-45	10-25
	4-12	Clay, silty clay	CL, CH	A-7	0	0	90-100	90-100	80-100	75-95	40-65	20-40
	12-20	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	75-100	70-90	35-60	15-35
	20-34	Shaly clay, silty clay, clay loam	CL, CH, SC, GC	A-6, A-7	0	0	60-95	55-90	50-85	45-80	35-60	15-35
	34-38	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Vaeda----------	0-7	Clay	CH	A-7	0	0	95-100	75-100	70-95	55-90	50-65	25-40
	7-16	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	95-100	75-100	70-95	55-90	45-65	20-40
	16-60	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	95-100	75-100	70-95	55-90	45-65	20-40
Bascovy---------	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1066D:												
Twilight	0-4	Fine sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	4-11	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	11-22	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	22-26	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Cabbart	0-3	Loam	CL-ML	A-4	0	0	90-100	85-100	65-85	55-75	25-30	5-10
	3-16	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	60-90	55-85	25-35	5-15
	16-20	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Marmarth	0-4	Loam	CL-ML, CL	A-4	0	0	100	100	85-95	60-80	25-30	5-10
	4-18	Clay loam, loam, sandy clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	60-80	25-40	5-20
	18-32	Loam, fine sandy loam, clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	60-80	25-35	5-15
	32-36	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
1090B:												
Harlake	0-9	Clay	CL, CH	A-7	0	0	100	100	90-100	75-90	40-65	20-40
	9-42	Stratified clay to silt loam	CL, CH	A-7	0	0	100	100	95-100	85-95	40-70	15-45
	42-60	Stratified silty clay loam to fine sandy loam	CL, CL-ML	A-6, A-4	0	0	100	100	85-95	60-75	20-40	5-15
Marvan	0-4	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-70	25-50
	4-19	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50
	19-60	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-100	45-70	25-50

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1221F:												
Hillon----------	0-3	Gravelly loam	GC, GM-GC, CL-ML, CL	A-4, A-6	0	0-5	60-80	55-75	45-70	35-55	20-35	5-15
	3-32	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
	32-60	Loam, clay loam	CL	A-6	0	0-5	85-100	80-100	80-90	65-80	25-35	10-20
Kevin----------	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-75	60-75	45-70	40-60	30-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-28	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	28-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
1251E:												
Neldore---------	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Bascovy---------	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
1261B:												
Absher----------	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
Nobe----------	0-7	Clay	CL, CH	A-7	0	0	100	100	90-100	80-95	40-55	15-30
	7-22	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	100	95-100	90-95	40-60	20-35
	22-60	Stratified loam to clay	CL, CH	A-7, A-6	0	0	100	100	85-100	75-90	35-55	15-30

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1262A:												
Toston	0-2	Loam	CL-ML	A-4	0	0	100	100	75-100	60-90	25-30	5-10
	2-8	Silty clay, silty clay loam	CL	A-7	0	0	100	100	95-100	85-95	40-45	20-25
	8-24	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	30-35	10-15
	24-60	Stratified silt loam to loamy sand	CL-ML	A-4	0	0	95-100	90-100	75-95	50-75	20-25	5-10
Nobe	0-6	Clay	CL, CH	A-7	0	0	100	100	90-100	75-90	40-65	20-40
	6-28	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	100	90-100	75-95	40-65	20-40
	28-60	Stratified loam to clay	CL, CH	A-7, A-6	0	0	100	100	85-100	65-85	35-60	15-35
1332C:												
Phillips	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
Elloam	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
Thoeny	0-6	Loam	CL	A-6	0	0-5	95-100	85-95	85-95	65-75	25-35	10-15
	6-14	Clay, clay loam	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	75-95	35-55	15-30
	14-25	Clay loam, clay	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	70-80	35-55	15-30
	25-60	Clay loam, clay	CL, CH	A-6, A-7	0	0-5	95-100	85-95	85-95	70-80	35-55	15-30
1333C:												
Kevin	0-6	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	25-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-33	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	33-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
Phillips	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1333C:(cont.)												
Elloam----------	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
1373C:												
Evanston--------	0-5	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	85-90	65-70	25-35	5-15
	5-12	Clay loam, loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	12-24	Clay loam, loam, silty clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	65-85	25-35	10-15
	24-60	Loam, clay loam, fine sandy loam	CL	A-6	0	0-5	95-100	95-100	70-90	50-75	25-35	10-15
Chinook---------	0-6	Fine sandy loam	SM	A-4, A-2	0	0	80-100	75-100	65-85	30-50	15-25	NP-5
	6-16	Fine sandy loam, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	55-85	30-50	15-25	NP-5
	16-44	Fine sandy loam, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	55-85	30-50	15-25	NP-5
	44-60	Fine sandy loam, loamy fine sand, sandy loam	SM	A-4, A-2	0	0	80-100	75-100	60-80	25-45	15-25	NP-5
Marmarth--------	0-4	Loam	CL-ML, CL	A-4	0	0	100	100	85-95	60-80	25-30	5-10
	4-18	Clay loam, loam, sandy clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	60-80	25-40	5-20
	18-32	Loam, fine sandy loam, clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	60-80	25-35	5-15
	32-36	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1392B:												
Creed----------	0-8	Loam	CL-ML, SC-SM	A-4	0	0	90-100	75-100	65-95	45-75	20-30	5-10
	8-14	Silty clay, clay, silty clay loam	CL, CH	A-6, A-7	0	0	90-100	75-100	70-100	60-95	35-60	15-35
	14-26	Silty clay loam, clay loam, clay	CL, SC	A-6, A-7	0	0	90-100	75-100	60-100	35-90	30-50	15-25
	26-60	Stratified loam to silty clay loam	CL	A-6, A-7	0	0	90-100	75-100	65-100	50-90	30-45	10-20
Gerdrum---------	0-3	Clay loam	CL	A-6	0	0	80-100	75-100	65-95	60-90	25-40	10-20
	3-12	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	12-23	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	90-100	90-100	85-100	75-95	40-60	20-40
	23-60	Clay loam, sandy clay loam, clay	CL, SC, CH	A-6, A-7	0	0	90-100	90-100	80-95	45-75	35-55	15-35
Absher----------	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
1400F:												
Rock outcrop.												
Arsite----------	0-3	Clay	CL, CH	A-7	0	0	100	100	80-90	75-85	40-65	20-40
	3-19	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	80-95	40-65	20-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1441D:												
Kevin----------	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-75	60-75	45-70	40-60	30-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-28	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	28-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
Scobey----------	0-6	Clay loam	CL	A-6	0	0-5	85-100	75-95	70-90	65-80	25-40	10-20
	6-16	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	16-35	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	35-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
Phillips--------	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
1443E:												
Kevin----------	0-6	Gravelly clay loam	CL, GC	A-6	0	0-10	65-75	60-75	45-70	40-60	30-40	10-20
	6-9	Clay loam, clay	CL	A-6, A-7	0	0-5	90-100	85-100	80-95	70-80	35-50	15-25
	9-28	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
	28-60	Clay loam	CL	A-6	0	0-5	90-100	85-100	80-95	70-80	30-40	10-20
Scobey----------	0-6	Clay loam	CL	A-6	0	0-5	85-100	75-95	70-90	65-80	25-40	10-20
	6-16	Clay, clay loam	CL	A-7, A-6	0	0-5	85-100	85-95	80-95	65-90	35-50	15-30
	16-35	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
	35-60	Clay loam	CL	A-6, A-7	0	0-5	85-100	75-95	70-90	65-80	35-45	15-25
Nishon----------	0-4	Clay loam	CL	A-6, A-7	0	0	100	100	85-100	70-80	30-45	10-20
	4-30	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-65	20-45
	30-60	Clay, silty clay, clay loam	CL, CH	A-6, A-7	0	0	90-100	90-100	80-100	65-90	35-60	15-40
1503D:												
Telstad----------	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	65-90	50-70	25-30	5-10
	6-14	Clay loam, loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-80	30-40	10-20
	14-38	Clay loam, loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	80-95	60-80	25-35	5-15
	38-60	Loam, clay loam	CL-ML, CL	A-6, A-4	0	0-5	95-100	90-100	75-90	55-75	25-35	5-15

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1503D: (cont.)												
Joplin	0-4	Loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	85-90	60-75	25-35	5-10
	4-8	Loam, clay loam	CL	A-6	0	0-5	95-100	90-100	80-95	60-75	30-40	10-15
	8-29	Loam, gravelly loam, clay loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
	29-60	Loam, gravelly loam, clay loam	CL-ML, CL, GM-GC, SC	A-4, A-6	0	0-5	70-95	65-95	60-90	40-75	25-40	5-15
1523C:												
Elloam	0-7	Clay loam	CL	A-6	0	0-5	95-100	80-100	70-100	55-80	30-40	10-15
	7-12	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	70-100	55-90	35-50	15-30
	12-20	Clay loam, clay	CL	A-6, A-7	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
	20-60	Clay loam, loam	CL	A-7, A-6	0	0-5	95-100	80-100	65-100	50-80	30-45	10-20
Phillips	0-6	Loam	CL-ML	A-4	0	0-5	85-100	80-100	75-100	55-80	20-30	5-10
	6-15	Clay, clay loam	CL	A-6, A-7	0	0-5	85-100	80-100	70-95	60-85	35-50	15-25
	15-25	Clay loam, loam	CL	A-6, A-7	0	0-5	85-100	80-100	75-100	55-80	30-45	10-20
	25-60	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	70-90	55-75	25-40	5-15
Absher	0-7	Clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-35
	7-9	Silty clay, clay, clay loam	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-60	20-40
	9-60	Clay loam, clay, silty clay	CL, CH	A-7	0	0	95-100	75-100	70-100	60-95	40-55	20-35
1850F:												
Cabbart	0-4	Loam	CL-ML	A-4	0	0	90-100	85-100	65-85	55-75	25-30	5-10
	4-18	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	60-90	55-85	25-35	5-15
	18-22	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Twilight	0-3	Fine sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	3-15	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	15-28	Fine sandy loam, sandy loam	SM	A-4	0	0	100	100	60-90	35-50	20-30	NP-5
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1850F:(cont.)												
Delpoint--------	0-4	Loam	CL-ML	A-4	0	0	95-100	90-100	75-90	55-75	20-30	5-10
	4-16	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	65-90	20-40	5-20
	16-29	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	65-90	20-40	5-20
	29-33	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
1920F:												
Sunburst--------	0-4	Clay	CL	A-7	0	0-10	95-100	85-95	85-95	80-90	40-50	20-30
	4-22	Clay, clay loam, silty clay loam	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
	22-60	Clay, clay loam, silty clay	CL	A-7, A-6	0	0-10	95-100	85-95	80-90	75-85	35-50	15-30
Neldore---------	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
1970F:												
Neldore---------	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	75-100	70-95	40-55	20-30
	3-8	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	70-95	65-90	40-60	20-40
	8-15	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	65-95	60-90	40-60	20-40
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Bascovy---------	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1970F:(cont.)												
Rock outcrop.												
1971F:												
Yawdim----------	0-3	Silty clay	CL, CH	A-7	0	0	100	100	95-100	80-95	40-55	20-35
	3-15	Silty clay loam, clay loam, clay	CL, CH	A-7	0	0	100	100	90-100	70-95	40-60	15-35
	15-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Cabbart---------	0-3	Loam	CL-ML	A-4	0	0	90-100	85-100	65-85	55-75	25-30	5-10
	3-16	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	60-90	55-85	25-35	5-15
	16-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
1972F:												
Volborg---------	0-4	Clay	CL	A-7	0	0-15	95-100	90-100	80-100	70-95	40-50	20-30
	4-12	Silty clay, silty clay loam, clay	CL	A-6, A-7	0	0	100	100	95-100	85-95	35-50	15-30
	12-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
1973F:												
Neldore, cool---	0-4	Clay	CL, CH	A-7	0	0-10	95-100	90-100	80-100	75-95	40-55	20-30
	4-10	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	75-100	70-95	40-60	20-40
	10-17	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	70-100	65-95	40-60	20-40
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1973F: (cont.)												
Neldore	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	80-100	75-95	40-55	20-30
	3-9	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	75-100	70-95	40-60	20-40
	9-13	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	70-100	65-95	40-60	20-40
	13-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
1976F:												
Neldore	0-3	Clay	CL, CH	A-7	0	0-10	95-100	90-100	80-100	75-95	40-55	20-30
	3-9	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	75-100	70-95	40-60	20-40
	9-13	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	70-100	65-95	40-60	20-40
	13-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Pinebreaks	0-3	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-55	20-30
	3-9	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-60	20-40
	9-18	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-60	20-40
	18-22	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Bascovy	0-4	Clay	CH, CL	A-7	0	0	90-100	75-100	70-95	60-95	40-60	20-35
	4-15	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	15-28	Clay, silty clay	CH	A-7	0	0	90-100	75-100	70-95	60-95	50-70	25-45
	28-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
1977F:												
Volborg	0-3	Clay	CL	A-7	0	0-15	95-100	90-100	80-100	70-95	40-50	20-30
	3-15	Silty clay, silty clay loam, clay	CL	A-6, A-7	0	0	100	100	95-100	85-95	35-50	15-30
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP

Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1977F: (cont.)												
Pinebreaks------	0-3	Clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-55	20-30
	3-9	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-60	20-40
	9-18	Clay, silty clay	CL, CH	A-7	0	0	100	100	90-100	75-95	40-60	20-40
	18-22	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
2972F:												
Volborg---------	0-4	Clay	CL	A-7	0	0-15	95-100	90-100	80-100	70-95	40-50	20-30
	4-12	Silty clay, silty clay loam, clay	CL	A-6, A-7	0	0	100	100	95-100	85-95	35-50	15-30
	12-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Neldore---------	0-4	Clay	CL, CH	A-7	0	0-10	95-100	90-100	80-100	75-95	40-55	20-30
	4-11	Clay, silty clay	CL, CH	A-7	0	0	90-100	85-100	75-100	70-95	40-60	20-40
	11-16	Clay, silty clay	CL, CH	A-7	0	0-5	85-100	80-100	70-100	65-95	40-60	20-40
	16-20	Weathered bedrock	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
W:												
Water.												

Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
10C:												
Barkof	0-4	45-55	1.10-1.35	0.06-0.20	0.14-0.18	High	3.0-6.0	0.32	0.32	3	4	86
	4-29	45-60	1.30-1.50	0.01-0.06	0.13-0.17	High	0.5-2.0	0.32	0.32			
	29-33	---	---	---	---		---	---	---			
11B:												
Degrand	0-6	10-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	2.0-3.0	0.37	0.37	3	5	56
	6-15	20-35	1.40-1.60	0.60-2.00	0.13-0.16	Moderate	1.0-2.0	0.32	0.32			
	15-23	15-30	1.35-1.60	0.60-2.00	0.13-0.16	Low	0.5-1.0	0.32	0.32			
	23-60	0-5	1.50-1.70	6.00-20.00	0.03-0.04	Low	0.0-0.5	0.10	0.15			
13B:												
Beaverton	0-5	15-27	1.15-1.35	0.60-2.00	0.14-0.16	Low	1.0-3.0	0.20	0.37	2	6	48
	5-13	18-35	1.50-1.70	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.32			
	13-18	18-35	1.50-1.70	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.32			
	18-60	0-10	1.50-1.75	6.00-20.00	0.03-0.04	Low	0.0-0.5	0.02	0.10			
25C:												
Bascovy	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
28A:												
Nishon	0-4	27-35	1.25-1.45	0.20-0.60	0.14-0.17	Moderate	0.5-1.0	0.37	0.37	5	6	48
	4-30	40-60	1.30-1.50	0.06-0.20	0.14-0.17	High	0.5-1.0	0.32	0.32			
	30-60	35-55	1.30-1.50	0.06-0.20	0.14-0.17	High	0.0-0.5	0.32	0.32			
29A:												
McKenzie	0-3	40-60	1.00-1.40	0.00-0.06	0.13-0.17	High	2.0-4.0	0.37	0.37	5	4	86
	3-8	40-60	1.20-1.60	0.00-0.06	0.13-0.17	High	0.5-2.0	0.28	0.28			
	8-60	40-60	1.20-1.60	0.00-0.06	0.13-0.17	High	0.0-0.5	0.28	0.28			
30A:												
Marvan	0-4	40-60	1.25-1.45	0.06-0.20	0.14-0.18	High	0.5-2.0	0.37	0.37	5	4	86
	4-19	45-60	1.30-1.50	0.01-0.06	0.14-0.16	High	0.5-1.0	0.37	0.37			
	19-60	45-60	1.30-1.50	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
31B:												
Ferd	0-6	20-27	1.25-1.45	0.20-2.00	0.15-0.19	Low	0.5-1.0	0.43	0.43	5	6	48
	6-13	35-50	1.30-1.50	0.06-0.20	0.15-0.19	High	0.5-1.0	0.37	0.37			
	13-22	27-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	22-60	27-40	1.30-1.50	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
32B:												
Kobase	0-6	27-40	1.20-1.40	0.20-0.60	0.16-0.20	Moderate	1.0-2.0	0.37	0.37	5	4L	86
	6-16	35-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	16-60	35-45	1.30-1.55	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
33B:												
Phillips	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
35C:												
Assinniboine----	0-6	5-15	1.30-1.50	0.60-2.00	0.13-0.16	Low	1.0-2.0	0.24	0.24	5	3	86
	6-16	18-30	1.40-1.60	0.60-2.00	0.14-0.17	Low	0.5-1.0	0.32	0.32			
	16-34	10-27	1.45-1.65	0.60-2.00	0.12-0.15	Low	0.5-1.0	0.24	0.24			
	34-60	0-15	1.50-1.70	2.00-6.00	0.07-0.09	Low	0.0-0.5	0.20	0.20			
36C:												
Chinook---------	0-6	5-18	1.25-1.45	2.00-6.00	0.13-0.16	Low	1.0-2.0	0.20	0.20	5	3	86
	6-16	5-18	1.40-1.60	2.00-6.00	0.12-0.15	Low	0.0-1.0	0.20	0.20			
	16-44	5-18	1.40-1.60	2.00-6.00	0.12-0.15	Low	0.0-1.0	0.20	0.20			
	44-60	5-15	1.40-1.65	2.00-6.00	0.11-0.12	Low	---	0.20	0.20			
37B:												
Evanston--------	0-5	20-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	5-12	25-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	12-24	20-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	24-60	15-30	1.35-1.55	0.60-2.00	0.16-0.18	Moderate	0.0-0.5	0.37	0.37			
37C:												
Evanston--------	0-5	20-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	5-12	25-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	12-24	20-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	24-60	15-30	1.35-1.55	0.60-2.00	0.16-0.18	Moderate	0.0-0.5	0.37	0.37			
38B:												
Ethridge--------	0-6	27-35	1.15-1.35	0.20-0.60	0.16-0.20	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.06-0.20	0.15-0.19	High	1.0-2.0	0.32	0.32			
	16-44	30-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	44-60	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
38C:												
Ethridge--------	0-6	27-35	1.15-1.35	0.20-0.60	0.16-0.20	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.06-0.20	0.15-0.19	High	1.0-2.0	0.32	0.32			
	16-44	30-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	44-60	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
41A:												
Vaeda-----------	0-7	40-60	1.25-1.45	0.00-0.06	0.14-0.17	High	0.5-2.0	0.43	0.43	5	4	86
	7-16	35-60	1.30-1.50	0.00-0.06	0.09-0.12	High	0.5-1.0	0.43	0.43			
	16-60	35-60	1.30-1.55	0.00-0.06	0.09-0.12	High	0.0-0.5	0.43	0.43			
43A:												
Pendroy---------	0-4	60-75	1.35-1.55	0.01-0.06	0.12-0.14	High	0.5-1.0	0.37	0.37	5	4	86
	4-34	60-75	1.35-1.55	0.01-0.06	0.12-0.14	High	0.5-1.0	0.37	0.37			
	34-60	50-65	1.30-1.50	0.01-0.06	0.12-0.15	High	0.0-0.5	0.37	0.37			
48A:												
Vanda-----------	0-4	40-60	1.25-1.45	0.01-0.06	0.08-0.12	High	0.5-2.0	0.43	0.43	5	4	86
	4-9	35-60	1.30-1.50	0.01-0.06	0.08-0.12	High	0.0-0.5	0.37	0.37			
	9-60	35-60	1.30-1.50	0.01-0.06	0.08-0.12	High	0.0-0.5	0.37	0.37			
49A:												
Lardell---------	0-4	27-40	1.20-1.40	0.20-0.60	0.07-0.09	Moderate	0.5-2.0	0.37	0.37	5	4	86
	4-16	27-35	1.30-1.50	0.20-0.60	0.07-0.09	Moderate	0.0-0.5	0.37	0.37			
	16-60	18-35	1.35-1.55	0.06-0.20	0.07-0.09	Moderate	0.0-0.5	0.37	0.37			
50B:												
Telstad---------	0-6	18-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	48
	6-14	25-35	1.25-1.45	0.20-0.60	0.16-0.19	Moderate	1.0-2.0	0.37	0.37			
	14-38	20-32	1.30-1.50	0.20-0.60	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	38-60	20-32	1.50-1.75	0.06-0.20	0.14-0.17	Moderate	0.0-0.5	0.37	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
52B:												
Elloam----------	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
56B:												
Scobey----------	0-6	27-35	1.15-1.35	0.60-2.00	0.16-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	16-35	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	35-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			
59B:												
Weingart--------	0-4	27-40	1.20-1.40	0.06-0.20	0.16-0.19	Moderate	1.0-2.0	0.43	0.43	2	6	48
	4-12	40-60	1.30-1.55	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37			
	12-20	35-55	1.30-1.55	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
	20-34	35-55	1.30-1.55	0.01-0.06	0.08-0.10	High	0.0-0.5	0.37	0.37			
	34-38	---	---	---	---		---	---	---			
60A:												
Havre-----------	0-5	15-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	0.5-2.0	0.37	0.37	5	6	48
	5-60	18-35	1.35-1.55	0.60-2.00	0.14-0.18	Low	0.5-1.0	0.28	0.28			
75C:												
Farnuf----------	0-6	15-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	2.0-4.0	0.32	0.32	5	6	48
	6-19	25-35	1.25-1.45	0.60-2.00	0.14-0.18	Moderate	1.0-3.0	0.32	0.32			
	19-32	20-30	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.32	0.32			
	32-60	15-30	1.30-1.50	0.60-2.00	0.12-0.16	Low	0.0-0.5	0.20	0.32			
79C:												
Yamacall--------	0-3	18-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.37	0.37	5	6	48
	3-11	18-35	1.25-1.45	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	11-60	18-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
81A:												
Glendive--------	0-4	10-27	1.25-1.45	0.60-2.00	0.16-0.20	Low	0.5-2.0	0.32	0.32	5	5	56
	4-26	5-18	1.30-1.50	2.00-6.00	0.15-0.18	Low	0.5-1.0	0.32	0.32			
	26-60	5-18	1.40-1.60	2.00-6.00	0.12-0.14	Low	0.5-1.0	0.20	0.20			
82B:												
Savage----------	0-3	27-35	1.20-1.40	0.60-2.00	0.16-0.20	Moderate	2.0-4.0	0.32	0.32	5	7	38
	3-14	35-50	1.30-1.50	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32			
	14-60	30-45	1.35-1.55	0.06-0.20	0.13-0.16	High	0.5-1.0	0.32	0.32			
82C:												
Savage----------	0-3	27-35	1.20-1.40	0.60-2.00	0.16-0.20	Moderate	2.0-4.0	0.32	0.32	5	7	38
	3-14	35-50	1.30-1.50	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32			
	14-60	30-45	1.35-1.55	0.06-0.20	0.13-0.16	High	0.5-1.0	0.32	0.32			
84F:												
Macmeal, warm---	0-8	10-25	1.15-1.35	0.60-2.00	0.10-0.13	Low	1.0-3.0	0.20	0.37	5	5	56
	8-33	27-35	1.30-1.50	0.20-0.60	0.06-0.07	Low	0.5-1.0	0.10	0.32			
	33-60	27-35	1.35-1.55	0.20-0.60	0.06-0.07	Low	0.0-0.5	0.10	0.32			
Macmeal---------	0-11	10-25	1.15-1.35	0.60-2.00	0.10-0.13	Low	1.0-3.0	0.20	0.37	5	5	56
	11-42	27-35	1.30-1.50	0.20-0.60	0.06-0.07	Low	0.5-1.0	0.10	0.32			
	42-60	27-35	1.35-1.55	0.20-0.60	0.06-0.07	Low	0.0-0.5	0.10	0.32			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
90A:												
Harlake	0-8	40-55	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.32	0.32	5	4	86
	8-50	35-60	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	50-60	15-35	1.30-1.55	0.06-0.20	0.12-0.14	Low	0.5-1.0	0.37	0.37			
93A:												
Bowdoin	0-3	50-70	1.20-1.45	0.01-0.06	0.10-0.13	High	0.5-2.0	0.37	0.37	5	4	86
	3-31	60-80	1.25-1.40	0.01-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	31-60	50-70	1.25-1.40	0.01-0.06	0.10-0.13	High	0.0-0.5	0.37	0.37			
94C:												
Busby	0-3	10-18	1.30-1.50	2.00-6.00	0.12-0.16	Low	1.0-2.0	0.20	0.20	3	3	86
	3-11	10-18	1.40-1.60	2.00-6.00	0.12-0.16	Low	0.5-1.0	0.32	0.32			
	11-31	10-18	1.40-1.60	2.00-6.00	0.12-0.15	Low	0.0-0.5	0.20	0.20			
	31-60	3-18	1.50-1.70	6.00-20.00	0.08-0.10	Low	0.0-0.5	0.20	0.20			
94D:												
Busby	0-3	10-18	1.30-1.50	2.00-6.00	0.12-0.16	Low	1.0-2.0	0.20	0.20	3	3	86
	3-11	10-18	1.40-1.60	2.00-6.00	0.12-0.16	Low	0.5-1.0	0.32	0.32			
	11-31	10-18	1.40-1.60	2.00-6.00	0.12-0.15	Low	0.0-0.5	0.20	0.20			
	31-60	3-18	1.50-1.70	6.00-20.00	0.08-0.10	Low	0.0-0.5	0.20	0.20			
96D:												
Megonot	0-4	35-40	1.15-1.35	0.06-0.20	0.15-0.18	High	1.0-3.0	0.37	0.37	3	4	86
	4-14	35-45	1.25-1.45	0.06-0.20	0.12-0.14	High	0.5-1.0	0.37	0.37			
	14-28	35-45	1.30-1.50	0.06-0.20	0.10-0.12	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
Kobase	0-6	27-40	1.20-1.40	0.20-0.60	0.16-0.20	Moderate	1.0-2.0	0.37	0.37	5	4L	86
	6-16	35-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	16-60	35-45	1.30-1.55	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
97D:												
Neldore	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			
Bascovy	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
100A:												
Hanly	0-3	10-20	1.10-1.50	2.00-6.00	0.13-0.15	Low	0.5-1.0	0.20	0.20	5	3	86
	3-60	0-12	1.20-1.60	6.00-20.00	0.05-0.14	Low	0.5-1.0	0.17	0.17			
101E:												
Barkof	0-4	45-55	1.10-1.35	0.06-0.20	0.14-0.18	High	3.0-6.0	0.32	0.32	3	4	86
	4-29	45-60	1.30-1.50	0.01-0.06	0.13-0.17	High	0.5-2.0	0.32	0.32			
	29-33	---	---	---	---		---	---	---			
Windham	0-5	18-27	1.20-1.40	0.60-2.00	0.12-0.14	Low	2.0-4.0	0.20	0.37	2	4L	86
	5-11	18-35	1.30-1.50	0.60-2.00	0.09-0.12	Low	1.0-2.0	0.20	0.43			
	11-25	18-35	1.40-1.60	0.60-2.00	0.03-0.04	Low	0.5-1.0	0.05	0.32			
	25-60	18-35	1.40-1.60	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.32			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
110C:												
Attewan---------	0-6	10-20	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	3	5	56
	6-17	20-35	1.40-1.60	0.60-2.00	0.14-0.17	Moderate	1.0-2.0	0.32	0.32			
	17-29	15-30	1.40-1.60	0.60-2.00	0.13-0.15	Moderate	0.5-1.0	0.32	0.32			
	29-60	0-10	1.40-1.60	6.00-20.00	0.02-0.03	Low	0.0-0.5	0.05	0.24			
Beaverell-------	0-4	10-27	1.15-1.35	0.60-2.00	0.12-0.16	Low	1.0-3.0	0.20	0.37	2	5	56
	4-13	20-35	1.30-1.55	0.60-2.00	0.06-0.10	Moderate	0.5-1.0	0.10	0.37			
	13-60	0-5	1.45-1.65	>20.00	0.02-0.04	Low	0.0-0.5	0.05	0.24			
115F:												
Silverchief-----	0-8	20-27	1.25-1.45	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.43	0.43	5	6	48
	8-21	35-50	1.30-1.50	0.06-0.20	0.13-0.17	High	0.5-1.0	0.32	0.32			
	21-32	40-60	1.30-1.50	0.06-0.20	0.10-0.13	High	0.5-1.0	0.17	0.32			
	32-60	30-45	1.45-1.65	0.20-0.60	0.07-0.08	Moderate	0.0-0.5	0.10	0.32			
Whitecow, warm--	0-4	18-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.20	0.37	2	4L	56
	4-22	18-35	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.43			
	22-60	18-35	1.30-1.50	0.60-2.00	0.04-0.06	Low	0.0-0.5	0.05	---			
Macmeal---------	0-11	10-25	1.15-1.35	0.60-2.00	0.10-0.13	Low	1.0-3.0	0.20	0.37	5	5	56
	11-42	27-35	1.30-1.50	0.20-0.60	0.06-0.07	Low	0.5-1.0	0.10	0.32			
	42-60	27-35	1.35-1.55	0.20-0.60	0.06-0.07	Low	0.0-0.5	0.10	0.32			
120F:												
Mocmont, cool---	0-9	15-20	1.15-1.35	0.60-2.00	0.11-0.14	Low	1.0-3.0	0.20	0.32	5	5	56
	9-16	15-30	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.32			
	16-45	20-35	1.30-1.50	0.60-2.00	0.04-0.05	Low	0.0-0.5	0.05	0.37			
	45-60	10-25	1.35-1.55	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.37			
Mocmont---------	0-12	10-15	1.30-1.50	0.60-2.00	0.05-0.07	Low	1.0-3.0	0.05	0.20	5	3	86
	12-23	15-30	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.32			
	23-46	20-35	1.30-1.50	0.60-2.00	0.04-0.05	Low	0.0-0.5	0.05	0.37			
	46-60	10-25	1.35-1.55	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.37			
121F:												
Mocmont---------	0-12	10-15	1.30-1.50	0.60-2.00	0.05-0.07	Low	1.0-3.0	0.05	0.20	5	3	86
	12-23	15-30	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.32			
	23-46	20-35	1.30-1.50	0.60-2.00	0.04-0.05	Low	0.0-0.5	0.05	0.37			
	46-60	10-25	1.35-1.55	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.37			
Mocmont, cool---	0-9	15-20	1.15-1.35	0.60-2.00	0.11-0.14	Low	1.0-3.0	0.20	0.32	5	5	56
	9-16	15-30	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.32			
	16-45	20-35	1.30-1.50	0.60-2.00	0.04-0.05	Low	0.0-0.5	0.05	0.37			
	45-60	10-25	1.35-1.55	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.37			
Tolex-----------	0-5	15-25	1.20-1.40	0.60-2.00	0.12-0.15	Low	2.0-4.0	0.20	0.37	1	5	56
	5-18	27-35	1.45-1.65	0.60-2.00	0.04-0.05	Moderate	1.0-2.0	0.05	0.32			
	18-22	---	---	---	---		---	---	---			
122F:												
Mocmont, cool---	0-9	15-20	1.20-1.40	0.60-2.00	0.09-0.12	Low	1.0-3.0	0.15	0.37	5	6	48
	9-41	20-35	1.30-1.55	0.60-2.00	0.04-0.05	Low	0.5-1.0	0.05	0.37			
	41-60	10-25	1.30-1.55	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.37			
Landusky--------	0-9	15-27	1.30-1.50	2.00-6.00	0.03-0.04	Low	0.5-1.0	0.02	0.32	1	8	---
	9-60	---	---	6.00-20.00	---	Low	---	---	---			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
130F:												
Rubble land.												
Mocmont, cool---	0-9	15-20	1.20-1.40	0.60-2.00	0.09-0.12	Low	1.0-3.0	0.15	0.37	5	6	48
	9-41	20-35	1.30-1.55	0.60-2.00	0.04-0.05	Low	0.5-1.0	0.05	0.37			
	41-60	10-25	1.30-1.55	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.37			
Rock outcrop.												
139F:												
Whitecow, warm--	0-4	18-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.20	0.37	2	4L	56
	4-22	18-35	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.43			
	22-60	18-35	1.30-1.50	0.60-2.00	0.04-0.06	Low	0.0-0.5	0.05	---			
Warneke---------	0-3	10-25	1.25-1.45	0.60-2.00	0.12-0.15	Low	1.0-2.0	0.20	0.37	1	4L	56
	3-15	10-25	1.35-1.55	0.60-2.00	0.04-0.06	Low	0.5-1.0	0.05	0.37			
	15-19	---	---	---	---		---	---	---			
140F:												
Whitecow--------	0-8	18-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.20	0.37	2	6	56
	8-32	18-35	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.43			
	32-60	18-35	1.30-1.50	0.60-2.00	0.04-0.06	Low	0.0-0.5	0.05	---			
Whitecow, warm--	0-4	18-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.20	0.37	2	4L	56
	4-22	18-35	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.43			
	22-60	18-35	1.30-1.50	0.60-2.00	0.04-0.06	Low	0.0-0.5	0.05	---			
151F:												
Warneke---------	0-3	10-25	1.25-1.45	0.60-2.00	0.12-0.15	Low	1.0-2.0	0.20	0.37	1	4L	56
	3-15	10-25	1.35-1.55	0.60-2.00	0.04-0.06	Low	0.5-1.0	0.05	0.37			
	15-19	---	---	---	---		---	---	---			
Whitecow, warm--	0-4	18-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.20	0.37	2	4L	56
	4-22	18-35	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.43			
	22-60	18-35	1.30-1.50	0.60-2.00	0.04-0.06	Low	0.0-0.5	0.05	---			
Rock outcrop.												
160D:												
Whitecow, warm--	0-4	18-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.20	0.37	2	4L	56
	4-22	18-35	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.43			
	22-60	18-35	1.30-1.50	0.60-2.00	0.04-0.06	Low	0.0-0.5	0.05	---			
160E:												
Whitecow, warm--	0-4	18-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.20	0.37	2	4L	56
	4-22	18-35	1.25-1.45	0.60-2.00	0.08-0.10	Low	0.5-1.0	0.10	0.43			
	22-60	18-35	1.30-1.50	0.60-2.00	0.04-0.06	Low	0.0-0.5	0.05	---			
170A:												
Dimmick---------	0-18	40-50	1.00-1.40	0.00-0.20	0.14-0.23	High	3.0-8.0	0.32	0.32	5	8	---
	18-60	40-60	1.30-1.60	0.00-0.06	0.13-0.20	High	1.0-3.0	0.28	0.28			
180B:												
Binna-----------	0-8	15-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	4	4L	86
	8-20	18-27	1.30-1.55	0.60-2.00	0.12-0.14	Low	0.5-1.0	0.24	0.37			
	20-60	0-10	1.40-1.60	2.00-6.00	0.03-0.04	Low	0.0-0.5	0.05	0.20			
Saypo-----------	0-8	27-35	1.15-1.35	0.60-2.00	0.13-0.17	Moderate	3.0-5.0	0.32	0.32	3	4L	86
	8-12	22-35	1.30-1.50	0.60-2.00	0.13-0.17	Moderate	1.0-2.0	0.32	0.32			
	12-30	22-35	1.30-1.50	0.20-0.60	0.11-0.14	Moderate	0.5-1.0	0.28	0.43			
	30-60	22-40	1.30-1.50	0.20-0.60	0.10-0.13	Moderate	0.5-1.0	0.15	0.28			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
190B:												
Nesda	0-16	10-20	1.20-1.40	0.60-2.00	0.12-0.16	Low	2.0-4.0	0.20	0.37	2	5	56
	16-60	0-10	1.55-1.70	6.00-20.00	0.03-0.04	Low	0.5-1.0	0.02	0.10			
Nesda, cool	0-12	10-20	1.30-1.50	2.00-6.00	0.06-0.10	Low	2.0-4.0	0.05	0.17	2	3	86
	12-60	0-10	1.50-1.70	6.00-20.00	0.03-0.05	Low	0.5-1.0	0.02	0.17			
200F:												
Mined land.												
201D:												
Cabba	0-4	10-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	2	4L	86
	4-14	20-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	14-18	---	---	---	---		---	---	---			
Windham	0-5	18-27	1.20-1.40	0.60-2.00	0.12-0.14	Low	2.0-4.0	0.20	0.37	2	4L	86
	5-11	18-35	1.30-1.50	0.60-2.00	0.09-0.12	Low	1.0-2.0	0.20	0.43			
	11-25	18-35	1.40-1.60	0.60-2.00	0.03-0.04	Low	0.5-1.0	0.05	0.32			
	25-60	18-35	1.40-1.60	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.32			
211B:												
Thoeny	0-6	15-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.49	0.49	2	5	56
	6-14	35-50	1.30-1.50	0.01-0.06	0.12-0.14	High	0.5-1.0	0.37	0.37			
	14-25	35-50	1.30-1.50	0.01-0.06	0.12-0.14	Moderate	0.5-1.0	0.43	0.43			
	25-60	35-50	1.30-1.50	0.01-0.06	0.10-0.12	Moderate	0.0-0.5	0.43	0.43			
Absher	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
212B:												
Thoeny	0-6	15-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.49	0.49	2	5	56
	6-14	35-50	1.30-1.50	0.01-0.06	0.12-0.14	High	0.5-1.0	0.37	0.37			
	14-25	35-50	1.30-1.50	0.01-0.06	0.12-0.14	Moderate	0.5-1.0	0.43	0.43			
	25-60	35-50	1.30-1.50	0.01-0.06	0.10-0.12	Moderate	0.0-0.5	0.43	0.43			
Elloam	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
220E:												
Hillon	0-4	20-27	1.20-1.40	0.60-2.00	0.10-0.14	Low	0.5-2.0	0.24	0.37	5	4L	86
	4-28	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	28-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
Joplin	0-4	15-27	1.20-1.40	0.60-2.00	0.10-0.14	Moderate	1.0-3.0	0.24	0.43	5	6	48
	4-8	25-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	1.0-2.0	0.37	0.37			
	8-26	18-32	1.30-1.55	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.28	0.37			
	26-60	18-32	1.60-1.80	0.06-0.20	0.13-0.16	Moderate	0.0-0.5	0.28	0.37			
221D:												
Hillon	0-3	20-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.24	0.43	5	4L	86
	3-32	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	32-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
Kevin	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.16	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	9-28	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	28-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
221E:												
Hillon	0-3	20-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.24	0.43	5	4L	86
	3-32	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	32-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
Kevin	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.16	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	9-28	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	28-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
224D:												
Hillon	0-3	20-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.24	0.43	5	4L	86
	3-32	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	32-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
Joplin	0-4	10-27	1.20-1.40	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.24	0.43	5	6	48
	4-9	25-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	1.0-2.0	0.37	0.37			
	9-30	18-32	1.30-1.55	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.28	0.37			
	30-60	18-32	1.60-1.80	0.06-0.20	0.13-0.16	Moderate	0.0-0.5	0.28	0.37			
241B:												
Benz	0-3	27-35	1.25-1.45	0.20-0.60	0.13-0.17	Moderate	0.5-2.0	0.43	---	5	4L	86
	3-60	18-35	1.35-1.55	0.06-0.20	0.08-0.13	Moderate	0.0-0.5	0.37	---			
Vanda	0-4	40-60	1.25-1.45	0.01-0.06	0.08-0.12	High	0.5-2.0	0.43	0.43	5	4	86
	4-9	35-60	1.30-1.50	0.01-0.06	0.08-0.12	High	0.0-0.5	0.37	0.37			
	9-60	35-60	1.30-1.50	0.01-0.06	0.08-0.12	High	0.0-0.5	0.37	0.37			
250E:												
Bascovy	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
Neldore	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			
Weingart, thin	0-7	40-45	1.20-1.40	0.01-0.06	0.15-0.18	High	1.0-2.0	0.37	0.37	2	4	86
	7-9	40-60	1.30-1.55	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37			
	9-17	35-55	1.30-1.55	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
	17-36	35-55	1.30-1.55	0.01-0.06	0.08-0.10	High	0.0-0.5	0.37	0.37			
	36-40	---	---	---	---		---	---	---			
251C:												
Bascovy	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
Neldore	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			
270E:												
Beaverell	0-4	10-27	1.15-1.35	0.60-2.00	0.12-0.16	Low	1.0-3.0	0.20	0.37	2	5	56
	4-13	20-35	1.30-1.55	0.60-2.00	0.06-0.10	Moderate	0.5-1.0	0.10	0.37			
	13-60	0-5	1.45-1.65	>20.00	0.02-0.04	Low	0.0-0.5	0.05	0.24			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
270E:(cont.)												
Tinsley---	0-4	5-10	1.30-1.50	2.00-6.00	0.08-0.11	Low	0.7-2.0	0.10	0.20	5	3	86
	4-60	0-10	1.45-1.65	6.00-20.00	0.01-0.02	Low	0.0-0.5	0.05	0.17			
271D:												
Beaverell---	0-4	10-27	1.15-1.35	0.60-2.00	0.12-0.16	Low	1.0-3.0	0.20	0.37	2	5	56
	4-13	20-35	1.30-1.55	0.60-2.00	0.06-0.10	Moderate	0.5-1.0	0.10	0.37			
	13-60	0-5	1.45-1.65	>20.00	0.02-0.04	Low	0.0-0.5	0.05	0.24			
Evanston---	0-5	20-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	5-12	25-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	12-24	20-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	24-60	15-30	1.35-1.55	0.60-2.00	0.16-0.18	Moderate	0.0-0.5	0.37	0.37			
301C:												
Marvan, saline--	0-4	40-60	1.25-1.45	0.06-0.20	0.11-0.15	High	0.5-1.0	0.37	0.37	5	4	86
	4-10	45-60	1.30-1.50	0.00-0.06	0.11-0.13	High	0.5-1.0	0.37	0.37			
	10-60	45-60	1.30-1.50	0.00-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
Marvan---	0-4	40-60	1.25-1.45	0.06-0.20	0.14-0.18	High	0.5-2.0	0.37	0.37	5	4	86
	4-19	45-60	1.30-1.50	0.01-0.06	0.14-0.16	High	0.5-1.0	0.37	0.37			
	19-60	45-60	1.30-1.50	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
302B:												
Marvan, saline--	0-4	40-60	1.25-1.45	0.06-0.20	0.11-0.15	High	0.5-1.0	0.37	0.37	5	4	86
	4-10	45-60	1.30-1.50	0.00-0.06	0.11-0.13	High	0.5-1.0	0.37	0.37			
	10-60	45-60	1.30-1.50	0.00-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
Vanda---	0-4	40-60	1.25-1.45	0.01-0.06	0.08-0.12	High	0.5-2.0	0.43	0.43	5	4	86
	4-9	35-60	1.30-1.50	0.01-0.06	0.08-0.12	High	0.0-0.5	0.37	0.37			
	9-60	35-60	1.30-1.50	0.01-0.06	0.08-0.12	High	0.0-0.5	0.37	0.37			
311B:												
Ferd---	0-6	20-27	1.25-1.45	0.20-2.00	0.15-0.19	Low	0.5-1.0	0.43	0.43	5	6	48
	6-13	35-50	1.30-1.50	0.06-0.20	0.15-0.19	High	0.5-1.0	0.37	0.37			
	13-22	27-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	22-60	27-40	1.30-1.50	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Gerdrum---	0-3	27-40	1.20-1.40	0.20-0.60	0.14-0.18	Moderate	1.0-3.0	0.43	0.43	2	6	48
	3-12	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	12-23	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	23-60	30-50	1.30-1.55	0.00-0.06	0.08-0.10	High	0.0-0.5	0.43	0.43			
312B:												
Ferd---	0-6	20-27	1.25-1.45	0.20-2.00	0.15-0.19	Low	0.5-1.0	0.43	0.43	5	6	48
	6-13	35-50	1.30-1.50	0.06-0.20	0.15-0.19	High	0.5-1.0	0.37	0.37			
	13-22	27-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	22-60	27-40	1.30-1.50	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Absher---	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
320A:												
Kobase---	0-6	40-45	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-2.0	0.32	0.32	5	4	86
	6-24	35-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.32	0.32			
	24-60	27-40	1.30-1.55	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
322C:												
Kobase----------	0-6	27-40	1.20-1.40	0.20-0.60	0.16-0.20	Moderate	1.0-2.0	0.37	0.37	5	4L	86
	6-16	35-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	16-60	35-45	1.30-1.55	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
Megonot---------	0-4	35-40	1.15-1.35	0.06-0.20	0.15-0.18	High	1.0-3.0	0.37	0.37	3	4	86
	4-14	35-45	1.25-1.45	0.06-0.20	0.12-0.14	High	0.5-1.0	0.37	0.37			
	14-28	35-45	1.30-1.50	0.06-0.20	0.10-0.12	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
323B:												
Kobase----------	0-6	27-40	1.20-1.40	0.20-0.60	0.16-0.20	Moderate	1.0-2.0	0.37	0.37	5	4L	86
	6-16	35-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	16-60	35-45	1.30-1.55	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
Marvan----------	0-4	40-60	1.25-1.45	0.06-0.20	0.14-0.18	High	0.5-2.0	0.37	0.37	5	4	86
	4-19	45-60	1.30-1.50	0.01-0.06	0.14-0.16	High	0.5-1.0	0.37	0.37			
	19-60	45-60	1.30-1.50	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
Weingart, thin--	0-7	40-45	1.20-1.40	0.01-0.06	0.15-0.18	High	1.0-2.0	0.37	0.37	2	4	86
	7-9	40-60	1.30-1.55	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37			
	9-17	35-55	1.30-1.55	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
	17-36	35-55	1.30-1.55	0.01-0.06	0.08-0.10	High	0.0-0.5	0.37	0.37			
	36-40	---	---	---	---		---	---	---			
331B:												
Phillips--------	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Absher----------	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
331C:												
Phillips--------	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Absher----------	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
332B:												
Phillips--------	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Elloam----------	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
333C:												
Phillips--------	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
333C:(cont.)												
Kevin	0-5	27-35	1.20-1.40	0.60-2.00	0.08-0.12	Moderate	1.0-3.0	0.15	0.37	5	6	48
	5-8	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	8-24	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	24-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
334C:												
Phillips	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Kevin	0-6	27-32	1.20-1.40	0.60-2.00	0.14-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	1.0-3.0	0.37	0.37			
	9-33	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	33-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
351C:												
Fortbenton	0-7	5-18	1.40-1.60	2.00-6.00	0.13-0.16	Low	1.0-2.0	0.32	0.32	5	3	86
	7-23	5-18	1.45-1.65	2.00-6.00	0.12-0.15	Low	0.5-1.0	0.32	0.32			
	23-29	5-18	1.45-1.65	2.00-6.00	0.12-0.15	Low	0.5-1.0	0.32	0.32			
	29-60	27-35	1.30-1.50	0.06-0.20	0.16-0.20	Moderate	0.0-0.5	0.37	0.37			
373C:												
Evanston	0-5	20-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	5-12	25-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	12-24	20-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	24-60	15-30	1.35-1.55	0.60-2.00	0.16-0.18	Moderate	0.0-0.5	0.37	0.37			
Chinook	0-6	5-18	1.25-1.45	2.00-6.00	0.13-0.16	Low	1.0-2.0	0.20	0.20	5	3	86
	6-16	5-18	1.40-1.60	2.00-6.00	0.12-0.15	Low	0.0-1.0	0.20	0.20			
	16-44	5-18	1.40-1.60	2.00-6.00	0.12-0.15	Low	0.0-1.0	0.20	0.20			
	44-60	5-15	1.40-1.65	2.00-6.00	0.11-0.12	Low	---	0.20	0.20			
381B:												
Ethridge	0-6	27-35	1.15-1.35	0.20-0.60	0.16-0.20	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.06-0.20	0.15-0.19	High	1.0-2.0	0.32	0.32			
	16-44	30-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	44-60	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
Gerdrum	0-3	27-40	1.20-1.40	0.20-0.60	0.14-0.18	Moderate	1.0-3.0	0.43	0.43	2	6	48
	3-12	35-55	1.30-1.55	0.01-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	12-23	35-55	1.30-1.55	0.01-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	23-60	30-50	1.30-1.55	0.01-0.06	0.08-0.10	High	0.0-0.5	0.43	0.43			
383C:												
Ethridge	0-6	27-35	1.15-1.35	0.20-0.60	0.16-0.20	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.06-0.20	0.15-0.19	High	1.0-2.0	0.32	0.32			
	16-44	30-45	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	44-60	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
Beaverell	0-4	10-27	1.15-1.35	0.60-2.00	0.12-0.16	Low	1.0-3.0	0.20	0.37	2	5	56
	4-13	20-35	1.30-1.55	0.60-2.00	0.06-0.10	Moderate	0.5-1.0	0.10	0.37			
	13-60	0-5	1.45-1.65	>20.00	0.02-0.04	Low	0.0-0.5	0.05	0.24			
391B:												
Creed	0-8	20-27	1.15-1.40	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.43	0.43	2	6	48
	8-14	35-55	1.30-1.55	0.06-0.20	0.10-0.14	High	1.0-2.0	0.32	0.32			
	14-26	27-45	1.30-1.55	0.06-0.20	0.08-0.12	Moderate	0.0-0.5	0.37	0.37			
	26-60	25-35	1.30-1.55	0.06-0.20	0.08-0.12	Moderate	0.0-0.5	0.37	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
391B:(cont.)												
Absher----------	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
392B:												
Creed----------	0-8	20-27	1.15-1.40	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.43	0.43	2	6	48
	8-14	35-55	1.30-1.55	0.06-0.20	0.10-0.14	High	1.0-2.0	0.32	0.32			
	14-26	27-45	1.30-1.55	0.06-0.20	0.08-0.12	Moderate	0.0-0.5	0.37	0.37			
	26-60	25-35	1.30-1.55	0.06-0.20	0.08-0.12	Moderate	0.0-0.5	0.37	0.37			
Gerdrum---------	0-3	27-40	1.20-1.40	0.20-0.60	0.14-0.18	Moderate	1.0-3.0	0.43	0.43	2	6	48
	3-12	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	12-23	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	23-60	30-50	1.30-1.55	0.00-0.06	0.08-0.10	High	0.0-0.5	0.43	0.43			
402B:												
Gerdrum---------	0-3	27-40	1.20-1.40	0.20-0.60	0.14-0.18	Moderate	1.0-3.0	0.43	0.43	2	6	48
	3-12	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	12-23	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	23-60	30-50	1.30-1.55	0.00-0.06	0.08-0.10	High	0.0-0.5	0.43	0.43			
Absher----------	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
421C:												
Joplin----------	0-4	10-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	56
	4-8	25-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	1.0-2.0	0.37	0.37			
	8-29	18-32	1.30-1.55	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.28	0.37			
	29-60	18-32	1.60-1.80	0.06-0.20	0.13-0.16	Moderate	0.0-0.5	0.28	0.37			
Hillon----------	0-3	20-27	1.20-1.40	0.60-2.00	0.18-0.20	Low	0.5-2.0	0.43	0.43	5	4L	86
	3-26	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	26-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
424D:												
Joplin----------	0-4	10-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	56
	4-8	25-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	1.0-2.0	0.37	0.37			
	8-29	18-32	1.30-1.55	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.28	0.37			
	29-60	18-32	1.60-1.80	0.06-0.20	0.13-0.16	Moderate	0.0-0.5	0.28	0.37			
Telstad---------	0-6	18-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	48
	6-14	25-35	1.25-1.45	0.20-0.60	0.16-0.19	Moderate	1.0-2.0	0.37	0.37			
	14-38	20-32	1.30-1.50	0.20-0.60	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	38-60	20-32	1.50-1.75	0.06-0.20	0.14-0.17	Moderate	0.0-0.5	0.37	0.37			
426C:												
Joplin----------	0-4	10-27	1.20-1.40	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.24	0.43	5	6	48
	4-9	25-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	1.0-2.0	0.37	0.37			
	9-30	18-32	1.30-1.55	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.28	0.37			
	30-60	18-32	1.60-1.80	0.06-0.20	0.13-0.16	Moderate	0.0-0.5	0.28	0.37			
Hillon----------	0-3	20-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.24	0.43	5	4L	86
	3-32	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	32-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
442C:												
Kevin	0-6	27-32	1.20-1.40	0.60-2.00	0.14-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	1.0-3.0	0.37	0.37			
	9-33	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	33-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
Hillon	0-3	20-27	1.20-1.40	0.60-2.00	0.18-0.20	Low	0.5-2.0	0.43	0.43	5	4L	86
	3-26	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	26-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
444C:												
Kevin	0-6	27-32	1.20-1.40	0.60-2.00	0.14-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	1.0-3.0	0.37	0.37			
	9-33	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	33-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
Sunburst	0-4	27-40	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-3.0	0.37	0.37	5	4L	86
	4-28	35-50	1.25-1.45	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	28-60	35-50	1.35-1.60	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
446D:												
Kevin	0-5	27-35	1.20-1.40	0.60-2.00	0.08-0.12	Moderate	1.0-3.0	0.15	0.37	5	6	48
	5-8	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	8-24	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	24-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
Sunburst	0-3	27-40	1.20-1.40	0.06-0.20	0.08-0.11	Moderate	1.0-3.0	0.15	0.32	5	4L	86
	3-26	35-50	1.30-1.50	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	26-60	35-50	1.35-1.65	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
481A:												
Bigsag	0-3	40-60	1.35-1.50	0.06-0.20	0.07-0.10	High	0.5-1.0	0.43	0.43	5	4	86
	3-9	35-60	1.35-1.50	0.00-0.06	0.07-0.10	High	0.0-0.5	0.37	0.37			
	9-60	35-60	1.35-1.50	0.00-0.06	0.07-0.10	High	0.0-0.5	0.37	0.37			
502C:												
Telstad	0-6	18-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	48
	6-14	25-35	1.25-1.45	0.20-0.60	0.16-0.19	Moderate	1.0-2.0	0.37	0.37			
	14-38	20-32	1.30-1.50	0.20-0.60	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	38-60	20-32	1.50-1.75	0.06-0.20	0.14-0.17	Moderate	0.0-0.5	0.37	0.37			
Elloam	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
503C:												
Telstad	0-6	18-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	48
	6-14	25-35	1.25-1.45	0.20-0.60	0.16-0.19	Moderate	1.0-2.0	0.37	0.37			
	14-38	20-32	1.30-1.50	0.20-0.60	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	38-60	20-32	1.50-1.75	0.06-0.20	0.14-0.17	Moderate	0.0-0.5	0.37	0.37			
Joplin	0-4	10-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	56
	4-8	25-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	1.0-2.0	0.37	0.37			
	8-29	18-32	1.30-1.55	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.28	0.37			
	29-60	18-32	1.60-1.80	0.06-0.20	0.13-0.16	Moderate	0.0-0.5	0.28	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
504C:												
Telstad	0-6	18-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	48
	6-14	25-35	1.25-1.45	0.20-0.60	0.16-0.19	Moderate	1.0-2.0	0.37	0.37			
	14-38	20-32	1.30-1.50	0.20-0.60	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	38-60	20-32	1.50-1.75	0.06-0.20	0.14-0.17	Moderate	0.0-0.5	0.37	0.37			
Absher	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
505C:												
Telstad	0-6	18-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	48
	6-14	25-35	1.25-1.45	0.20-0.60	0.16-0.19	Moderate	1.0-2.0	0.37	0.37			
	14-38	20-32	1.30-1.50	0.20-0.60	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	38-60	20-32	1.50-1.75	0.06-0.20	0.14-0.17	Moderate	0.0-0.5	0.37	0.37			
Hillon	0-3	20-27	1.20-1.40	0.60-2.00	0.18-0.20	Low	0.5-2.0	0.43	0.43	5	4L	86
	3-26	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	26-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
511B:												
Martinsdale	0-6	18-27	1.20-1.40	0.60-2.00	0.18-0.20	Low	2.0-4.0	0.32	0.32	4	6	48
	6-13	25-35	1.30-1.50	0.20-0.60	0.15-0.18	Moderate	1.0-3.0	0.37	0.37			
	13-44	20-35	1.40-1.60	0.20-0.60	0.13-0.16	Moderate	0.5-1.0	0.37	0.37			
	44-60	15-30	1.50-1.70	0.20-0.60	0.10-0.12	Low	0.0-0.5	0.15	0.37			
Judith	0-6	18-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	2.0-4.0	0.32	0.32	2	6	48
	6-11	18-35	1.30-1.50	0.60-2.00	0.12-0.14	Low	0.5-1.0	0.20	0.32			
	11-31	18-35	1.30-1.50	0.60-2.00	0.12-0.14	Low	0.5-1.0	0.20	0.32			
	31-60	18-35	1.35-1.60	2.00-6.00	0.06-0.08	Low	0.0-0.5	0.10	0.43			
521B:												
Elloam	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
Absher	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
561B:												
Scobey	0-6	27-35	1.15-1.35	0.60-2.00	0.16-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	16-35	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	35-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			
Phillips	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
562C:												
Scobey	0-6	27-35	1.15-1.35	0.60-2.00	0.16-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	16-35	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	35-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
562C:(cont.)												
Elloam----------	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
563C:												
Scobey----------	0-6	27-35	1.15-1.35	0.60-2.00	0.16-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	16-35	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	35-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			
Kevin----------	0-6	27-32	1.20-1.40	0.60-2.00	0.14-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	1.0-3.0	0.37	0.37			
	9-33	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	33-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
564C:												
Scobey----------	0-6	27-35	1.15-1.35	0.60-2.00	0.16-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	16-35	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	35-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			
Kevin----------	0-6	27-32	1.20-1.40	0.60-2.00	0.14-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	1.0-3.0	0.37	0.37			
	9-33	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	33-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
Elloam----------	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
566C:												
Scobey----------	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.14	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-14	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	14-32	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	32-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			
Kevin----------	0-5	27-32	1.20-1.40	0.60-2.00	0.08-0.12	Moderate	1.0-3.0	0.10	0.32	5	6	48
	5-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	1.0-2.0	0.37	0.37			
	9-30	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	30-60	27-35	1.50-1.75	0.06-0.20	0.10-0.12	Moderate	0.0-0.5	0.37	0.37			
567C:												
Scobey----------	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.14	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-14	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	14-32	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	32-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			
Elloam----------	0-7	30-40	1.25-1.40	0.20-0.60	0.12-0.16	Moderate	1.0-2.0	0.24	0.43	2	4	86
	7-13	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	13-22	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	22-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
Absher----------	0-7	27-40	1.20-1.40	0.06-0.20	0.09-0.13	Moderate	1.0-2.0	0.24	0.43	2	6	48
	7-10	35-60	1.35-1.60	0.00-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	10-60	35-50	1.30-1.55	0.00-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
600:												
Pits, gravel.												
601A:												
Havre	0-7	15-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	0.5-2.0	0.37	0.37	5	6	56
	7-60	18-35	1.35-1.55	0.60-2.00	0.14-0.18	Low	0.5-1.0	0.28	0.28			
Harlake	0-10	27-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37	5	6	48
	10-46	35-60	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	46-60	15-35	1.30-1.55	0.06-0.20	0.12-0.14	Low	0.5-1.0	0.37	0.37			
Glendive	0-4	10-27	1.25-1.45	0.60-2.00	0.16-0.20	Low	0.5-2.0	0.32	0.32	5	5	56
	4-26	5-18	1.30-1.50	2.00-6.00	0.15-0.18	Low	0.5-1.0	0.32	0.32			
	26-60	5-18	1.40-1.60	2.00-6.00	0.12-0.14	Low	0.5-1.0	0.20	0.20			
603A:												
Havre	0-6	40-55	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-2.0	0.28	0.28	5	4	86
	6-60	18-35	1.30-1.55	0.60-2.00	0.14-0.18	Low	0.5-1.0	0.28	0.28			
604A:												
Bullhook	0-4	15-27	1.30-1.50	0.60-2.00	0.13-0.18	Low	0.5-2.0	0.37	0.37	5	6	56
	4-14	18-35	1.30-1.55	0.60-2.00	0.12-0.20	Moderate	0.5-2.0	0.32	0.32			
	14-60	18-35	1.30-1.55	0.60-2.00	0.11-0.17	Moderate	0.5-2.0	0.32	0.32			
610:												
Pits, bentonite.												
650C:												
Yetull	0-8	0-10	1.35-1.55	6.00-20.00	0.05-0.08	Low	1.0-2.0	0.20	0.20	5	2	220
	8-60	0-10	1.45-1.65	6.00-20.00	0.05-0.07	Low	0.0-0.5	0.17	0.17			
650D:												
Yetull	0-8	0-10	1.35-1.55	6.00-20.00	0.05-0.08	Low	1.0-2.0	0.20	0.20	5	2	220
	8-60	0-10	1.45-1.65	6.00-20.00	0.05-0.07	Low	0.0-0.5	0.17	0.17			
731C:												
Judith	0-6	18-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	2.0-4.0	0.32	0.32	2	6	48
	6-11	18-35	1.30-1.50	0.60-2.00	0.12-0.14	Low	0.5-1.0	0.20	0.32			
	11-31	18-35	1.30-1.50	0.60-2.00	0.12-0.14	Low	0.5-1.0	0.20	0.32			
	31-60	18-35	1.35-1.60	2.00-6.00	0.06-0.08	Low	0.0-0.5	0.10	0.43			
Windham	0-5	18-27	1.20-1.40	0.60-2.00	0.12-0.14	Low	2.0-4.0	0.20	0.37	2	4L	86
	5-11	18-35	1.30-1.50	0.60-2.00	0.09-0.12	Low	1.0-2.0	0.20	0.43			
	11-25	18-35	1.40-1.60	0.60-2.00	0.03-0.04	Low	0.5-1.0	0.05	0.32			
	25-60	18-35	1.40-1.60	0.60-2.00	0.03-0.04	Low	0.0-0.5	0.05	0.32			
791E:												
Yamacall, calcareous	0-7	18-27	1.20-1.40	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.37	0.37	5	4L	86
	7-42	18-35	1.30-1.50	0.60-2.00	0.16-0.20	Moderate	0.5-1.0	0.37	0.37			
	42-60	10-27	1.25-1.45	2.00-6.00	0.14-0.18	Low	0.0-0.5	0.32	0.32			
Yamacall	0-3	18-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.37	0.37	5	6	48
	3-11	18-35	1.25-1.45	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	11-60	18-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
792C:												
Yamacall, calcareous	0-7	18-27	1.20-1.40	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.37	0.37	5	4L	86
	7-42	18-35	1.30-1.50	0.60-2.00	0.16-0.20	Moderate	0.5-1.0	0.37	0.37			
	42-60	10-27	1.25-1.45	2.00-6.00	0.14-0.18	Low	0.0-0.5	0.32	0.32			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
792C:(cont.)												
Yamacall--------	0-3	18-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.37	0.37	5	6	48
	3-11	18-35	1.25-1.45	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	11-60	18-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
811A:												
Glendive--------	0-4	10-27	1.25-1.45	0.60-2.00	0.16-0.20	Low	0.5-2.0	0.32	0.32	5	5	56
	4-26	5-18	1.30-1.50	2.00-6.00	0.15-0.18	Low	0.5-1.0	0.32	0.32			
	26-60	5-18	1.40-1.60	2.00-6.00	0.12-0.14	Low	0.5-1.0	0.20	0.20			
Havre-----------	0-6	15-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	0.5-2.0	0.37	0.37	5	5	56
	6-60	18-35	1.35-1.55	0.60-2.00	0.14-0.18	Low	0.5-1.0	0.28	0.28			
821D:												
Savage----------	0-3	27-35	1.20-1.40	0.60-2.00	0.16-0.20	Moderate	2.0-4.0	0.32	0.32	5	6	38
	3-14	35-50	1.30-1.50	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32			
	14-60	30-45	1.35-1.55	0.06-0.20	0.13-0.16	High	0.5-1.0	0.32	0.32			
Farnuf----------	0-6	15-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	2.0-4.0	0.32	0.32	5	6	48
	6-19	25-35	1.25-1.45	0.60-2.00	0.14-0.18	Moderate	1.0-3.0	0.32	0.32			
	19-32	20-30	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.32	0.32			
	32-60	15-30	1.30-1.50	0.60-2.00	0.12-0.16	Low	0.0-0.5	0.20	0.32			
860C:												
Weingart--------	0-4	27-40	1.20-1.40	0.06-0.20	0.16-0.19	Moderate	1.0-2.0	0.43	0.43	2	6	48
	4-12	40-60	1.30-1.55	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37			
	12-20	35-55	1.30-1.55	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
	20-34	35-55	1.30-1.55	0.01-0.06	0.08-0.10	High	0.0-0.5	0.37	0.37			
	34-38	---	---	---	---		---	---	---			
Weingart, thin--	0-7	40-45	1.20-1.40	0.01-0.06	0.15-0.18	High	1.0-2.0	0.37	0.37	2	4	86
	7-9	40-60	1.30-1.55	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37			
	9-17	35-55	1.30-1.55	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
	17-36	35-55	1.30-1.55	0.01-0.06	0.08-0.10	High	0.0-0.5	0.37	0.37			
	36-40	---	---	---	---		---	---	---			
871B:												
Tamaneen--------	0-7	27-35	1.15-1.35	0.60-2.00	0.15-0.17	Moderate	2.0-5.0	0.28	0.28	3	6	48
	7-16	35-50	1.20-1.40	0.20-0.60	0.14-0.16	High	1.0-3.0	0.32	0.32			
	16-23	30-45	1.25-1.45	0.20-0.60	0.14-0.16	Moderate	1.0-2.0	0.32	0.32			
	23-38	18-35	1.30-1.50	0.60-2.00	0.10-0.12	Low	0.5-1.0	0.10	0.28			
	38-60	8-25	1.40-1.60	2.00-6.00	0.04-0.05	Low	0.0-0.5	0.05	0.32			
Danvers---------	0-6	27-35	1.15-1.35	0.60-2.00	0.14-0.18	Moderate	2.0-4.0	0.32	0.32	4	6	48
	6-16	35-50	1.30-1.50	0.06-0.20	0.13-0.16	High	1.0-2.0	0.32	0.32			
	16-48	35-45	1.30-1.50	0.06-0.20	0.13-0.16	High	0.5-1.0	0.37	0.37			
	48-60	10-35	1.45-1.65	0.20-0.60	0.06-0.07	Low	0.0-0.5	0.17	0.43			
901A:												
Lallie----------	0-16	27-40	1.20-1.30	0.06-0.20	0.12-0.15	Moderate	3.0-7.0	0.32	0.32	5	8	---
	16-60	35-60	1.25-1.35	0.06-0.20	0.10-0.15	High	0.0-2.0	0.37	0.37			
902A:												
Lostriver-------	0-6	40-55	1.40-1.55	0.06-0.20	0.12-0.18	High	0.5-2.0	0.32	---	5	4	86
	6-21	35-55	1.40-1.55	0.06-0.20	0.12-0.18	High	0.5-1.0	0.32	---			
	21-60	35-55	1.40-1.55	0.06-0.20	0.11-0.17	High	0.5-1.0	0.32	---			
Bullhook--------	0-4	15-27	1.30-1.50	0.60-2.00	0.13-0.18	Low	0.5-2.0	0.37	0.37	5	6	56
	4-14	18-35	1.30-1.55	0.60-2.00	0.12-0.20	Moderate	0.5-2.0	0.32	0.32			
	14-60	18-35	1.30-1.55	0.60-2.00	0.11-0.17	Moderate	0.5-2.0	0.32	0.32			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
903A:												
Harlake	0-8	40-55	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.32	0.32	5	4	86
	8-50	35-60	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	50-60	15-35	1.30-1.55	0.06-0.20	0.12-0.14	Low	0.5-1.0	0.37	0.37			
Lostriver	0-6	40-55	1.40-1.55	0.06-0.20	0.12-0.18	High	0.5-2.0	0.32	---	5	4	86
	6-21	35-55	1.40-1.55	0.06-0.20	0.12-0.18	High	0.5-1.0	0.32	---			
	21-60	35-55	1.40-1.55	0.06-0.20	0.11-0.17	High	0.5-1.0	0.32	---			
905A:												
Harlake	0-6	30-40	1.15-1.35	0.06-0.20	0.14-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-48	35-45	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	48-60	15-25	1.30-1.50	0.06-0.20	0.14-0.18	Low	0.5-1.0	0.43	0.43			
Havre	0-6	27-40	1.15-1.35	0.20-0.60	0.14-0.18	Moderate	1.0-3.0	0.32	0.32	5	6	48
	6-60	18-32	1.30-1.50	0.60-2.00	0.15-0.19	Low	0.5-1.0	0.37	0.37			
921D:												
Sunburst	0-4	27-40	1.20-1.40	0.06-0.20	0.10-0.14	Moderate	1.0-3.0	0.20	0.37	5	4L	86
	4-21	35-50	1.30-1.50	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	21-60	35-50	1.35-1.65	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
Kevin	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.16	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	9-28	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	28-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
923C:												
Sunburst	0-4	27-40	1.20-1.40	0.06-0.20	0.10-0.14	Moderate	1.0-3.0	0.20	0.37	5	4L	86
	4-21	35-50	1.30-1.50	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	21-60	35-50	1.35-1.65	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
Kevin	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.16	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	9-28	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	28-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
923F:												
Sunburst	0-3	40-50	1.15-1.35	0.06-0.20	0.08-0.12	High	1.0-3.0	0.17	0.28	5	4	86
	3-24	35-50	1.30-1.50	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	24-60	35-50	1.35-1.65	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
Kevin	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.16	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	9-28	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	28-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
924E:												
Sunburst	0-3	40-50	1.15-1.35	0.06-0.20	0.08-0.12	High	1.0-3.0	0.17	0.28	5	4	86
	3-24	35-50	1.30-1.50	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	24-60	35-50	1.35-1.65	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
Bascovy	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
Neldore	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
925C:												
Sunburst--------	0-3	40-50	1.15-1.35	0.06-0.20	0.08-0.12	High	1.0-3.0	0.17	0.28	5	4	86
	3-24	35-50	1.30-1.50	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	24-60	35-50	1.35-1.65	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
Bascovy---------	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
Weingart, thin--	0-7	40-45	1.20-1.40	0.01-0.06	0.15-0.18	High	1.0-2.0	0.37	0.37	2	4	86
	7-9	40-60	1.30-1.55	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37			
	9-17	35-55	1.30-1.55	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
	17-36	35-55	1.30-1.55	0.01-0.06	0.08-0.10	High	0.0-0.5	0.37	0.37			
	36-40	---	---	---	---		---	---	---			
926F:												
Sunburst--------	0-3	40-50	1.15-1.35	0.06-0.20	0.08-0.12	High	1.0-3.0	0.17	0.28	5	4	86
	3-24	35-50	1.30-1.50	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	24-60	35-50	1.35-1.65	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
Neldore---------	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			
Rock outcrop.												
930A:												
Wheatbelt-------	0-6	60-85	1.20-1.40	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37	5	4	86
	6-24	60-85	1.20-1.40	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37			
	24-60	60-85	1.20-1.40	0.01-0.06	0.10-0.12	High	0.0-0.5	0.37	0.37			
971F:												
Neldore---------	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			
Cabbart---------	0-3	18-27	1.20-1.40	0.60-2.00	0.17-0.21	Low	1.0-2.0	0.37	0.37	2	4L	86
	3-16	18-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	16-20	---	---	---	---		---	---	---			
Tinsley---------	0-4	5-10	1.30-1.50	2.00-6.00	0.08-0.11	Low	0.7-2.0	0.10	0.20	5	3	86
	4-60	0-10	1.45-1.65	6.00-20.00	0.01-0.02	Low	0.0-0.5	0.05	0.17			
973E:												
Neldore, cool---	0-4	40-60	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	4-10	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	10-17	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	17-21	---	---	---	---		---	---	---			
Bascovy---------	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
974F:												
Pinebreaks------	0-3	40-50	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-9	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	9-18	40-60	1.30-1.50	0.06-0.20	0.06-0.08	High	0.0-0.5	0.32	0.32			
	18-22	---	---	---	---		---	---	---			
Neldore---------	0-3	40-60	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-9	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	9-13	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	13-17	---	---	---	---		---	---	---			
1021E:												
Cabbart---------	0-3	18-27	1.20-1.40	0.60-2.00	0.17-0.21	Low	1.0-2.0	0.37	0.37	2	4L	86
	3-16	18-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	16-20	---	---	---	---		---	---	---			
Twilight--------	0-4	5-18	1.15-1.40	2.00-6.00	0.13-0.16	Low	1.0-3.0	0.20	0.20	3	3	86
	4-11	5-18	1.25-1.50	2.00-6.00	0.13-0.16	Low	0.5-1.0	0.20	0.20			
	11-22	5-18	1.25-1.50	2.00-6.00	0.12-0.15	Low	0.0-0.5	0.20	0.20			
	22-26	---	1.30-1.50	---	---		---	---	---			
Yawdim----------	0-3	27-40	1.10-1.30	0.20-0.60	0.17-0.20	Moderate	0.5-1.0	0.37	0.37	2	4	86
	3-17	35-50	1.20-1.40	0.06-0.20	0.15-0.18	High	0.0-0.5	0.32	0.32			
	17-21	---	---	0.01-0.20	---		---	---	---			
1022F:												
Hillon----------	0-3	20-27	1.20-1.40	0.60-2.00	0.18-0.20	Low	0.5-2.0	0.43	0.43	5	4L	86
	3-26	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	26-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
Cabbart---------	0-3	18-27	1.20-1.40	0.60-2.00	0.17-0.21	Low	1.0-2.0	0.37	0.37	2	4L	86
	3-16	18-35	1.20-1.40	0.60-2.00	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	16-20	---	---	---	---		---	---	---			
Rock outcrop.												
1030D:												
Marvan----------	0-4	40-60	1.25-1.45	0.06-0.20	0.14-0.18	High	0.5-2.0	0.37	0.37	5	4	86
	4-19	45-60	1.30-1.50	0.01-0.06	0.14-0.16	High	0.5-1.0	0.37	0.37			
	19-60	45-60	1.30-1.50	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
Gerdrum---------	0-3	27-40	1.20-1.40	0.20-0.60	0.14-0.18	Moderate	1.0-3.0	0.43	0.43	2	6	48
	3-12	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	12-23	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	23-60	30-50	1.30-1.55	0.00-0.06	0.08-0.10	High	0.0-0.5	0.43	0.43			
1037D:												
Evanston--------	0-5	20-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	5-12	25-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	12-24	20-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	24-60	15-30	1.35-1.55	0.60-2.00	0.16-0.18	Moderate	0.0-0.5	0.37	0.37			
Yamacall--------	0-3	18-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.37	0.37	5	6	48
	3-11	18-35	1.25-1.45	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	11-60	18-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
1052B:												
Elloam----------	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
1052B:(cont.)												
Thoeny----------	0-6	15-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.49	0.49	2	5	56
	6-14	35-50	1.30-1.50	0.01-0.06	0.12-0.14	High	0.5-1.0	0.37	0.37			
	14-25	35-50	1.30-1.50	0.01-0.06	0.12-0.14	Moderate	0.5-1.0	0.43	0.43			
	25-60	35-50	1.30-1.50	0.01-0.06	0.10-0.12	Moderate	0.0-0.5	0.43	0.43			
1059E:												
Weingart--------	0-4	27-40	1.20-1.40	0.06-0.20	0.16-0.19	Moderate	1.0-2.0	0.43	0.43	2	6	48
	4-12	40-60	1.30-1.55	0.01-0.06	0.12-0.15	High	0.5-1.0	0.37	0.37			
	12-20	35-55	1.30-1.55	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
	20-34	35-55	1.30-1.55	0.01-0.06	0.08-0.10	High	0.0-0.5	0.37	0.37			
	34-38	---	---	---	---		---	---	---			
Vaeda-----------	0-7	40-60	1.25-1.45	0.01-0.06	0.14-0.17	High	0.5-2.0	0.43	0.43	5	4	86
	7-16	35-60	1.30-1.50	0.01-0.06	0.09-0.12	High	0.5-1.0	0.43	0.43			
	16-60	35-60	1.30-1.55	0.01-0.06	0.09-0.12	High	0.0-0.5	0.43	0.43			
Bascovy---------	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
1066D:												
Twilight--------	0-4	5-18	1.15-1.40	2.00-6.00	0.13-0.16	Low	1.0-3.0	0.20	0.20	3	3	86
	4-11	5-18	1.25-1.50	2.00-6.00	0.13-0.16	Low	0.5-1.0	0.20	0.20			
	11-22	5-18	1.25-1.50	2.00-6.00	0.12-0.15	Low	0.0-0.5	0.20	0.20			
	22-26	---	1.30-1.50	---	---		---	---	---			
Cabbart---------	0-3	18-27	1.20-1.40	0.60-2.00	0.17-0.21	Low	1.0-2.0	0.37	0.37	2	4L	86
	3-16	18-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	16-20	---	---	---	---		---	---	---			
Marmarth--------	0-4	20-27	1.10-1.30	0.60-2.00	0.18-0.22	Low	1.0-3.0	0.37	0.37	3	6	48
	4-18	20-35	1.35-1.60	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.32	0.32			
	18-32	15-30	1.35-1.60	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.32	0.32			
	32-36	---	---	0.20-2.00	---		---	---	---			
1090B:												
Harlake---------	0-9	40-55	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.32	0.32	5	4	86
	9-42	35-60	1.30-1.50	0.06-0.20	0.14-0.18	High	0.5-1.0	0.37	0.37			
	42-60	15-35	1.30-1.55	0.06-0.20	0.12-0.14	Low	0.5-1.0	0.37	0.37			
Marvan----------	0-4	40-60	1.25-1.45	0.06-0.20	0.14-0.18	High	0.5-2.0	0.37	0.37	5	4	86
	4-19	45-60	1.30-1.50	0.01-0.06	0.14-0.16	High	0.5-1.0	0.37	0.37			
	19-60	45-60	1.30-1.50	0.01-0.06	0.09-0.11	High	0.0-0.5	0.37	0.37			
1221F:												
Hillon----------	0-3	20-27	1.20-1.40	0.60-2.00	0.12-0.16	Low	0.5-2.0	0.24	0.43	5	4L	86
	3-32	20-35	1.30-1.60	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.43	0.43			
	32-60	20-35	1.50-1.80	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.43	0.43			
Kevin-----------	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.16	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	9-28	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	28-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
1251E:												
Neldore---------	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
1251E:(cont.)												
Bascovy	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
1261B:												
Absher	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
Nobe	0-7	40-50	1.30-1.50	0.01-0.06	0.13-0.16	High	0.5-2.0	0.43	0.43	5	4	86
	7-22	35-60	1.30-1.50	0.01-0.06	0.06-0.07	High	0.5-1.0	0.43	0.43			
	22-60	35-60	1.30-1.55	0.01-0.06	0.06-0.07	High	0.0-0.5	0.43	0.43			
1262A:												
Toston	0-2	18-27	1.20-1.40	0.60-2.00	0.18-0.20	Low	2.0-5.0	0.43	0.43	2	6	48
	2-8	35-45	1.30-1.50	0.06-0.20	0.14-0.16	Moderate	1.0-2.0	0.32	0.32			
	8-24	27-35	1.20-1.40	0.20-0.60	0.16-0.18	Moderate	0.5-1.0	0.37	0.37			
	24-60	10-30	1.20-1.40	0.60-2.00	0.12-0.14	Low	0.0-0.5	0.37	0.37			
Nobe	0-6	40-50	1.20-1.40	0.06-0.20	0.11-0.13	High	0.5-2.0	0.43	0.43	5	4	86
	6-28	35-60	1.40-1.60	0.01-0.06	0.05-0.08	High	0.5-1.0	0.43	0.43			
	28-60	35-60	1.40-1.60	0.01-0.06	0.05-0.08	High	0.0-0.5	0.43	0.43			
1332C:												
Phillips	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Elloam	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
Thoeny	0-6	15-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-2.0	0.49	0.49	2	5	56
	6-14	35-50	1.30-1.50	0.01-0.06	0.12-0.14	High	0.5-1.0	0.37	0.37			
	14-25	35-50	1.30-1.50	0.01-0.06	0.12-0.14	Moderate	0.5-1.0	0.43	0.43			
	25-60	35-50	1.30-1.50	0.01-0.06	0.10-0.12	Moderate	0.0-0.5	0.43	0.43			
1333C:												
Kevin	0-6	27-32	1.20-1.40	0.60-2.00	0.14-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	1.0-3.0	0.37	0.37			
	9-33	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	33-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
Phillips	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Elloam	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
1373C:												
Evanston	0-5	20-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	5	6	48
	5-12	25-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	12-24	20-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	24-60	15-30	1.35-1.55	0.60-2.00	0.16-0.18	Moderate	0.0-0.5	0.37	0.37			
Chinook	0-6	5-18	1.25-1.45	2.00-6.00	0.13-0.16	Low	1.0-2.0	0.20	0.20	5	3	86
	6-16	5-18	1.40-1.60	2.00-6.00	0.12-0.15	Low	0.0-1.0	0.20	0.20			
	16-44	5-18	1.40-1.60	2.00-6.00	0.12-0.15	Low	0.0-1.0	0.20	0.20			
	44-60	5-15	1.40-1.65	2.00-6.00	0.11-0.12	Low	---	0.20	0.20			
Marmarth	0-4	20-27	1.10-1.30	0.60-2.00	0.18-0.22	Low	1.0-3.0	0.37	0.37	3	6	48
	4-18	20-35	1.35-1.60	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.32	0.32			
	18-32	15-30	1.35-1.60	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.32	0.32			
	32-36	---	---	0.20-2.00	---		---	---	---			
1392B:												
Creed	0-8	20-27	1.15-1.40	0.60-2.00	0.14-0.18	Low	1.0-3.0	0.43	0.43	2	6	48
	8-14	35-55	1.30-1.55	0.06-0.20	0.10-0.14	High	1.0-2.0	0.32	0.32			
	14-26	27-45	1.30-1.55	0.06-0.20	0.08-0.12	Moderate	0.0-0.5	0.37	0.37			
	26-60	25-35	1.30-1.55	0.06-0.20	0.08-0.12	Moderate	0.0-0.5	0.37	0.37			
Gerdrum	0-3	27-40	1.20-1.40	0.20-0.60	0.14-0.18	Moderate	1.0-3.0	0.43	0.43	2	6	48
	3-12	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	12-23	35-55	1.30-1.55	0.00-0.06	0.10-0.13	High	0.5-1.0	0.37	0.37			
	23-60	30-50	1.30-1.55	0.00-0.06	0.08-0.10	High	0.0-0.5	0.43	0.43			
Absher	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
1400F:												
Rock outcrop.												
Arsite	0-3	40-60	1.25-1.45	0.01-0.06	0.09-0.10	High	0.5-1.0	0.43	0.43	2	4	86
	3-19	40-60	1.30-1.50	0.01-0.06	0.07-0.08	High	0.0-0.5	0.37	0.37			
	19-23	---	---	---	---		---	---	---			
1441D:												
Kevin	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.16	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	9-28	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	28-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			
Scobey	0-6	27-35	1.15-1.35	0.60-2.00	0.16-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	16-35	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	35-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			
Phillips	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
1443E:												
Kevin	0-6	27-35	1.20-1.40	0.60-2.00	0.12-0.16	Moderate	1.0-3.0	0.20	0.37	5	6	48
	6-9	35-45	1.30-1.50	0.20-0.60	0.15-0.19	High	0.5-1.0	0.37	0.37			
	9-28	27-35	1.30-1.60	0.20-0.60	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	28-60	27-35	1.60-1.80	0.06-0.20	0.12-0.15	Moderate	0.0-0.5	0.37	0.37			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
1443E:(cont.)												
Scobey	0-6	27-35	1.15-1.35	0.60-2.00	0.16-0.18	Moderate	1.0-3.0	0.37	0.37	5	6	48
	6-16	35-45	1.30-1.50	0.20-0.60	0.15-0.18	High	1.0-2.0	0.32	0.32			
	16-35	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	35-60	30-40	1.35-1.65	0.06-0.20	0.15-0.18	Moderate	0.0-0.5	0.37	0.37			
Nishon	0-4	27-35	1.25-1.45	0.20-0.60	0.14-0.17	Moderate	0.5-1.0	0.37	0.37	5	6	48
	4-30	40-60	1.30-1.50	0.06-0.20	0.14-0.17	High	0.5-1.0	0.32	0.32			
	30-60	35-55	1.30-1.50	0.06-0.20	0.14-0.17	High	0.0-0.5	0.32	0.32			
1503D:												
Telstad	0-6	18-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	48
	6-14	25-35	1.25-1.45	0.20-0.60	0.16-0.19	Moderate	1.0-2.0	0.37	0.37			
	14-38	20-32	1.30-1.50	0.20-0.60	0.15-0.18	Moderate	0.5-1.0	0.37	0.37			
	38-60	20-32	1.50-1.75	0.06-0.20	0.14-0.17	Moderate	0.0-0.5	0.37	0.37			
Joplin	0-4	10-27	1.20-1.40	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	6	56
	4-8	25-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	1.0-2.0	0.37	0.37			
	8-29	18-32	1.30-1.55	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.28	0.37			
	29-60	18-32	1.60-1.80	0.06-0.20	0.13-0.16	Moderate	0.0-0.5	0.28	0.37			
1523C:												
Elloam	0-7	27-35	1.25-1.40	0.60-2.00	0.12-0.18	Moderate	1.0-2.0	0.43	0.43	2	6	48
	7-12	35-55	1.40-1.60	0.06-0.20	0.10-0.14	High	0.5-1.0	0.43	0.43			
	12-20	30-45	1.40-1.60	0.01-0.06	0.10-0.14	Moderate	0.0-0.5	0.43	0.43			
	20-60	25-40	1.40-1.65	0.01-0.06	0.08-0.12	Moderate	0.0-0.5	0.43	0.43			
Phillips	0-6	15-27	1.15-1.35	0.20-2.00	0.16-0.20	Low	1.0-3.0	0.43	0.43	5	5	56
	6-15	35-45	1.20-1.40	0.06-0.20	0.14-0.18	Moderate	1.0-2.0	0.37	0.37			
	15-25	25-40	1.30-1.50	0.06-0.20	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	25-60	20-35	1.50-1.75	0.06-0.20	0.13-0.17	Moderate	0.0-0.5	0.37	0.37			
Absher	0-7	40-55	1.20-1.40	0.01-0.06	0.10-0.13	High	1.0-2.0	0.43	0.43	2	4	86
	7-9	35-60	1.35-1.60	0.01-0.06	0.08-0.10	High	0.5-1.0	0.37	0.37			
	9-60	35-50	1.30-1.55	0.01-0.06	0.05-0.07	High	0.0-0.5	0.43	0.43			
1850F:												
Cabbart	0-4	18-27	1.20-1.40	0.60-2.00	0.17-0.21	Low	1.0-2.0	0.37	0.37	2	4L	86
	4-18	18-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	18-22	---	---	---	---		---	---	---			
Twilight	0-3	5-18	1.15-1.40	2.00-6.00	0.13-0.16	Low	1.0-3.0	0.20	0.20	3	3	86
	3-15	5-18	1.25-1.50	2.00-6.00	0.13-0.16	Low	0.5-1.0	0.20	0.20			
	15-28	5-18	1.25-1.50	2.00-6.00	0.12-0.15	Low	0.0-0.5	0.20	0.20			
	28-32	---	1.30-1.50	---	---		---	---	---			
Delpoint	0-4	20-27	1.15-1.35	0.60-2.00	0.16-0.20	Low	1.0-3.0	0.37	0.37	3	6	48
	4-16	18-35	1.30-1.50	0.60-2.00	0.14-0.18	Moderate	0.5-1.0	0.37	0.37			
	16-29	18-35	1.30-1.55	0.60-2.00	0.14-0.18	Moderate	0.0-0.5	0.37	0.37			
	29-33	---	---	---	---		---	---	---			
1920F:												
Sunburst	0-4	40-50	1.15-1.35	0.06-0.20	0.12-0.16	High	1.0-3.0	0.32	0.32	5	4	86
	4-22	35-50	1.25-1.45	0.06-0.20	0.12-0.15	High	0.5-1.0	0.37	0.37			
	22-60	35-50	1.35-1.60	0.06-0.20	0.12-0.15	High	0.0-0.5	0.37	0.37			
Neldore	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
1970F:												
Neldore	0-3	40-60	1.20-1.40	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-8	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	8-15	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	15-19	---	---	---	---		---	---	---			
Bascovy	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			
Rock outcrop.												
1971F:												
Yawdim	0-3	40-50	1.10-1.30	0.06-0.20	0.15-0.18	High	0.5-1.0	0.32	0.32	2	4	86
	3-15	35-50	1.20-1.40	0.06-0.20	0.15-0.18	High	0.0-0.5	0.32	0.32			
	15-60	---	---	0.01-0.20	---		---	---	---			
Cabbart	0-3	18-27	1.20-1.40	0.60-2.00	0.17-0.21	Low	1.0-2.0	0.37	0.37	2	4L	86
	3-16	18-35	1.30-1.50	0.60-2.00	0.15-0.19	Moderate	0.5-1.0	0.37	0.37			
	16-60	---	---	---	---		---	---	---			
Rock outcrop.												
1972F:												
Volborg	0-4	40-50	1.30-1.50	0.06-0.20	0.13-0.16	High	1.0-2.0	0.32	0.32	2	2	134
	4-12	35-50	1.30-1.50	0.06-0.20	0.10-0.12	High	0.5-1.0	0.32	0.32			
	12-16	---	---	---	---		---	---	---			
Rock outcrop.												
1973F:												
Neldore, cool	0-4	40-60	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	4-10	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	10-17	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	17-21	---	---	---	---		---	---	---			
Neldore	0-3	40-60	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-9	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	9-13	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	13-17	---	---	---	---		---	---	---			
Rock outcrop.												
1976F:												
Neldore	0-3	40-60	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-9	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	9-13	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	13-17	---	---	---	---		---	---	---			
Pinebreaks	0-3	40-50	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-9	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	9-18	40-60	1.30-1.50	0.06-0.20	0.06-0.08	High	0.0-0.5	0.32	0.32			
	18-22	---	---	---	---		---	---	---			
Bascovy	0-4	40-60	1.20-1.40	0.00-0.06	0.14-0.18	High	1.0-2.0	0.37	0.37	3	4	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.14-0.18	High	0.5-1.0	0.37	0.37			
	15-28	40-60	1.30-1.50	0.00-0.06	0.13-0.16	High	0.0-0.5	0.37	0.37			
	28-32	---	---	---	---		---	---	---			

Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*		*Pct*					
1977F:												
Volborg---------	0-3	40-50	1.30-1.50	0.06-0.20	0.13-0.16	High	1.0-2.0	0.32	0.32	2	2	134
	3-15	35-50	1.30-1.50	0.06-0.20	0.10-0.12	High	0.5-1.0	0.32	0.32			
	15-19	---	---	---	---		---	---	---			
Pinebreaks------	0-3	40-50	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	3-9	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	9-18	40-60	1.30-1.50	0.06-0.20	0.06-0.08	High	0.0-0.5	0.32	0.32			
	18-22	---	---	---	---		---	---	---			
Rock outcrop.												
2972F:												
Volborg---------	0-4	40-50	1.30-1.50	0.06-0.20	0.13-0.16	High	1.0-2.0	0.32	0.32	2	2	134
	4-12	35-50	1.30-1.50	0.06-0.20	0.10-0.12	High	0.5-1.0	0.32	0.32			
	12-16	---	---	---	---		---	---	---			
Neldore---------	0-4	40-60	1.15-1.35	0.06-0.20	0.14-0.18	High	1.0-3.0	0.32	0.32	2	4	86
	4-11	40-60	1.25-1.50	0.06-0.20	0.12-0.16	High	0.5-1.0	0.32	0.32			
	11-16	40-60	1.30-1.50	0.06-0.20	0.12-0.16	High	0.0-0.5	0.32	0.32			
	16-20	---	---	---	---		---	---	---			
Rock outcrop.												
W:												
Water.												

Chemical Properties of the Soils

(Absence of an entry indicates that the data were not available or were not estimated.)

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
10C:								
Barkof----------	0-4	45-55	30.0-40.0	6.6-8.4	0-5	---	0-2	---
	4-29	45-60	30.0-35.0	7.4-9.0	5-10	0-3	2-4	1-5
	29-33	---	---	---	---	---	---	---
11B:								
Degrand---------	0-6	10-27	10.0-15.0	6.6-7.8	---	---	---	---
	6-15	20-35	15.0-20.0	6.6-8.4	---	---	---	---
	15-23	15-30	10.0-15.0	7.4-9.0	15-40	---	0-4	---
	23-60	0-5	1.0-5.0	7.9-8.4	5-15	---	0-2	---
13B:								
Beaverton-------	0-5	15-27	15.0-20.0	6.6-7.8	---	---	---	---
	5-13	18-35	15.0-20.0	6.6-7.8	---	---	---	---
	13-18	18-35	15.0-20.0	7.4-8.4	15-25	---	---	---
	18-60	0-10	1.0-5.0	7.4-8.4	5-15	---	0-2	---
25C:								
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
28A:								
Nishon----------	0-4	27-35	15.0-20.0	6.1-7.8	---	---	---	---
	4-30	40-60	30.0-35.0	6.6-9.0	---	---	0-2	---
	30-60	35-55	30.0-35.0	7.4-9.0	2-10	0-3	2-4	---
29A:								
McKenzie--------	0-3	40-60	25.0-30.0	6.6-9.0	0-5	---	2-8	---
	3-8	40-60	20.0-25.0	6.6-9.0	0-5	---	2-8	---
	8-60	40-60	20.0-25.0	7.9-9.0	5-10	0-5	2-8	---
30A:								
Marvan----------	0-4	40-60	25.0-30.0	7.4-8.4	1-5	---	0-4	0-13
	4-19	45-60	25.0-30.0	7.9-9.0	2-10	0-5	2-8	4-13
	19-60	45-60	25.0-30.0	7.9-9.0	2-10	1-5	4-16	13-38
31B:								
Ferd----------	0-6	20-27	10.0-20.0	6.6-7.3	---	---	---	---
	6-13	35-50	15.0-30.0	6.6-8.4	---	---	0-2	---
	13-22	27-40	10.0-25.0	7.9-9.0	5-15	---	2-8	0-13
	22-60	27-40	10.0-25.0	7.9-9.6	5-15	0-3	4-8	8-13
32B:								
Kobase----------	0-6	27-40	25.0-30.0	7.4-8.4	5-10	---	0-2	1-5
	6-16	35-45	20.0-25.0	7.4-8.4	5-15	---	0-2	5-10
	16-60	35-45	20.0-25.0	7.9-9.0	5-15	0-5	0-4	8-13
33B:								
Phillips--------	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
35C:								
Assinniboine----	0-6	5-15	10.0-15.0	6.1-7.8	---	---	---	---
	6-16	18-30	15.0-20.0	6.6-7.8	---	---	0-2	---
	16-34	10-27	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	34-60	0-15	5.0-10.0	7.4-8.4	5-10	---	0-2	---
36C:								
Chinook---------	0-6	5-18	10.0-15.0	6.6-8.4	---	---	0-2	---
	6-16	5-18	5.0-10.0	6.6-8.4	---	---	0-2	---
	16-44	5-18	5.0-10.0	7.4-9.0	3-15	---	0-2	---
	44-60	5-15	5.0-10.0	7.4-9.0	1-5	---	0-2	---
37B:								
Evanston--------	0-5	20-27	15.0-20.0	6.6-7.8	---	---	---	---
	5-12	25-35	20.0-25.0	6.6-7.8	---	---	---	---
	12-24	20-35	20.0-25.0	7.4-8.4	5-15	---	0-2	---
	24-60	15-30	10.0-15.0	7.9-9.0	5-15	0-2	0-4	---
37C:								
Evanston--------	0-5	20-27	15.0-20.0	6.6-7.8	---	---	---	---
	5-12	25-35	20.0-25.0	6.6-7.8	---	---	---	---
	12-24	20-35	20.0-25.0	7.4-8.4	5-15	---	0-2	---
	24-60	15-30	10.0-15.0	7.9-9.0	5-15	0-2	0-4	---
38B:								
Ethridge--------	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-8.4	---	---	---	---
	16-44	30-45	20.0-25.0	7.4-9.0	5-15	---	---	1-5
	44-60	25-40	20.0-25.0	7.4-9.0	5-15	0-3	2-4	1-5
38C:								
Ethridge--------	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-8.4	---	---	---	---
	16-44	30-45	20.0-25.0	7.4-9.0	5-15	---	---	1-5
	44-60	25-40	20.0-25.0	7.4-9.0	5-15	0-3	2-4	1-5
41A:								
Vaeda-----------	0-7	40-60	25.0-30.0	5.6-7.8	---	---	2-4	---
	7-16	35-60	25.0-30.0	5.1-7.8	0-5	1-5	4-16	10-20
	16-60	35-60	25.0-30.0	6.1-9.0	0-5	1-5	4-16	10-20
43A:								
Pendroy---------	0-4	60-75	40.0-45.0	7.4-8.4	0-5	---	0-4	---
	4-34	60-75	35.0-40.0	7.4-8.4	1-5	0-6	2-4	---
	34-60	50-65	30.0-35.0	7.9-8.4	1-5	2-6	2-4	---
48A:								
Vanda-----------	0-4	40-60	25.0-35.0	7.9-9.6	1-5	---	2-8	20-30
	4-9	35-60	20.0-30.0	7.9-9.6	2-10	0-5	2-8	13-30
	9-60	35-60	20.0-30.0	7.9-9.6	2-10	0-5	8-16	13-30
49A:								
Lardell---------	0-4	27-40	25.0-30.0	7.9-9.6	1-5	---	>16	8-50
	4-16	27-35	20.0-25.0	8.5-9.6	2-10	---	16-50	13-80
	16-60	18-35	15.0-20.0	8.5-9.6	2-10	---	16-50	13-30
50B:								
Telstad---------	0-6	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	6-14	25-35	20.0-25.0	6.6-8.4	---	---	---	---
	14-38	20-32	15.0-20.0	7.9-8.4	5-15	---	0-2	---
	38-60	20-32	15.0-20.0	7.9-9.0	3-12	0-3	2-4	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
52B:								
Elloam----------	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
56B:								
Scobey----------	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	16-35	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	35-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8
59B:								
Weingart--------	0-4	27-40	30.0-35.0	5.6-7.8	---	---	0-2	10-20
	4-12	40-60	30.0-35.0	6.6-9.0	---	---	2-8	10-30
	12-20	35-55	30.0-35.0	7.9-9.0	5-15	0-1	4-16	13-30
	20-34	35-55	30.0-35.0	7.9-9.0	2-10	1-5	4-16	13-30
	34-38	---	---	---	---	---	---	---
60A:								
Havre-----------	0-5	15-27	15.0-20.0	7.4-8.4	1-5	---	0-2	---
	5-60	18-35	15.0-25.0	7.4-9.0	2-10	---	0-4	0-13
75C:								
Farnuf----------	0-6	15-27	10.0-15.0	6.1-7.8	---	---	---	---
	6-19	25-35	15.0-20.0	6.1-7.8	---	---	---	---
	19-32	20-30	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	32-60	15-30	10.0-15.0	7.4-9.0	5-10	---	2-8	5-10
79C:								
Yamacall--------	0-3	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	3-11	18-35	10.0-15.0	6.6-8.4	0-5	---	---	---
	11-60	18-35	10.0-15.0	7.9-9.0	5-15	0-1	0-4	1-5
81A:								
Glendive--------	0-4	10-27	15.0-20.0	7.4-9.0	1-5	---	0-4	---
	4-26	5-18	10.0-15.0	7.4-9.0	2-10	---	0-4	---
	26-60	5-18	10.0-15.0	7.4-9.0	2-10	---	2-8	---
82B:								
Savage----------	0-3	27-35	25.0-30.0	6.1-7.8	---	---	---	---
	3-14	35-50	30.0-35.0	6.1-8.4	---	---	0-4	---
	14-60	30-45	25.0-30.0	7.4-8.4	5-15	0-3	0-4	---
82C:								
Savage----------	0-3	27-35	25.0-30.0	6.1-7.8	---	---	---	---
	3-14	35-50	30.0-35.0	6.1-8.4	---	---	0-4	---
	14-60	30-45	25.0-30.0	7.4-8.4	5-15	0-3	0-4	---
84F:								
Macmeal, warm---	0-8	10-25	10.0-15.0	6.1-7.3	---	---	---	---
	8-33	27-35	15.0-20.0	6.1-7.3	---	---	---	---
	33-60	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---
Macmeal---------	0-11	10-25	10.0-15.0	6.1-7.3	---	---	---	---
	11-42	27-35	15.0-20.0	6.1-7.3	---	---	---	---
	42-60	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
90A:								
Harlake	0-8	40-55	30.0-35.0	7.4-8.4	1-5	---	0-4	0-4
	8-50	35-60	25.0-35.0	7.4-9.0	2-10	---	0-4	0-13
	50-60	15-35	15.0-20.0	7.9-9.0	2-10	1-3	0-8	0-13
93A:								
Bowdoin	0-3	50-70	30.0-50.0	7.4-9.0	1-5	---	8-16	5-13
	3-31	60-80	35.0-55.0	7.4-9.0	1-5	---	8-16	13-30
	31-60	50-70	30.0-45.0	7.9-9.0	1-5	2-10	8-16	13-30
94C:								
Busby	0-3	10-18	10.0-15.0	7.4-8.4	---	---	---	---
	3-11	10-18	10.0-15.0	7.4-8.4	---	---	---	---
	11-31	10-18	5.0-15.0	7.9-8.4	5-15	---	0-2	---
	31-60	3-18	5.0-10.0	7.9-8.4	5-15	---	0-4	---
94D:								
Busby	0-3	10-18	10.0-15.0	7.4-8.4	---	---	---	---
	3-11	10-18	10.0-15.0	7.4-8.4	---	---	---	---
	11-31	10-18	5.0-15.0	7.9-8.4	5-15	---	0-2	---
	31-60	3-18	5.0-10.0	7.9-8.4	5-15	---	0-4	---
96D:								
Megonot	0-4	35-40	25.0-30.0	6.6-7.8	0-5	---	---	---
	4-14	35-45	20.0-25.0	7.4-8.4	2-10	---	0-4	---
	14-28	35-45	20.0-25.0	7.4-8.4	5-15	1-5	0-4	---
	28-32	---	---	---	---	---	---	---
Kobase	0-6	27-40	25.0-30.0	7.4-8.4	5-10	---	0-2	1-5
	6-16	35-45	20.0-25.0	7.4-8.4	2-10	---	0-2	5-10
	16-60	35-45	20.0-25.0	7.9-9.0	5-15	0-5	0-4	8-13
97D:								
Neldore	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---
Bascovy	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
100A:								
Hanly	0-3	10-20	10.0-15.0	7.4-8.4	1-5	---	---	---
	3-60	0-12	5.0-10.0	7.4-8.4	2-10	---	---	---
101E:								
Barkof	0-4	45-55	30.0-40.0	6.6-8.4	0-5	---	0-2	---
	4-29	45-60	30.0-35.0	7.4-9.0	5-10	0-3	2-4	1-5
	29-33	---	---	---	---	---	---	---
Windham	0-5	18-27	15.0-20.0	7.4-8.4	5-10	---	---	---
	5-11	18-35	15.0-20.0	7.9-8.4	35-60	---	---	---
	11-25	18-35	15.0-20.0	7.9-8.4	40-60	---	---	---
	25-60	18-35	10.0-15.0	7.9-8.4	40-60	---	0-2	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
110C:								
Attewan---------	0-6	10-20	5.0-10.0	6.1-7.3	---	---	---	---
	6-17	20-35	15.0-20.0	6.6-7.8	---	---	---	---
	17-29	15-30	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	29-60	0-10	1.0-5.0	7.4-8.4	5-10	---	0-2	---
Beaverell-------	0-4	10-27	10.0-20.0	6.6-7.8	---	---	---	---
	4-13	20-35	15.0-25.0	6.6-7.8	---	---	---	---
	13-60	0-5	0.0-5.0	7.4-8.4	2-15	---	0-2	---
115F:								
Silverchief-----	0-8	20-27	10.0-15.0	6.1-7.3	---	---	---	---
	8-21	35-50	20.0-25.0	6.6-7.8	---	---	---	---
	21-32	40-60	20.0-30.0	6.6-7.8	---	---	---	---
	32-60	30-45	15.0-20.0	7.4-8.4	15-35	---	0-2	---
Whitecow, warm--	0-4	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	4-22	18-35	10.0-15.0	7.4-8.4	35-50	---	0-2	---
	22-60	18-35	10.0-15.0	7.4-9.0	40-50	---	0-2	---
Macmeal---------	0-11	10-25	10.0-15.0	6.1-7.3	---	---	---	---
	11-42	27-35	15.0-20.0	6.1-7.3	---	---	---	---
	42-60	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---
120F:								
Mocmont, cool---	0-9	15-20	9.0-17.0	5.1-6.5	---	---	---	---
	9-16	15-30	9.0-15.0	5.1-6.5	---	---	---	---
	16-45	20-35	9.0-13.0	5.1-6.5	---	---	---	---
	45-60	10-25	8.0-12.0	5.1-6.5	---	---	---	---
Mocmont---------	0-12	10-15	5.0-10.0	5.1-6.5	---	---	---	---
	12-23	15-30	9.0-15.0	5.1-6.5	---	---	---	---
	23-46	20-35	9.0-13.0	5.1-6.5	---	---	---	---
	46-60	10-25	8.0-12.0	5.1-6.5	---	---	---	---
121F:								
Mocmont---------	0-12	10-15	5.0-10.0	5.1-6.5	---	---	---	---
	12-23	15-30	9.0-15.0	5.1-6.5	---	---	---	---
	23-46	20-35	9.0-13.0	5.1-6.5	---	---	---	---
	46-60	10-25	8.0-12.0	5.1-6.5	---	---	---	---
Mocmont, cool---	0-9	15-20	9.0-17.0	5.1-6.5	---	---	---	---
	9-16	15-30	9.0-15.0	5.1-6.5	---	---	---	---
	16-45	20-35	9.0-13.0	5.1-6.5	---	---	---	---
	45-60	10-25	8.0-12.0	5.1-6.5	---	---	---	---
Tolex-----------	0-5	15-25	15.0-20.0	5.1-6.5	---	---	---	---
	5-18	27-35	20.0	5.1-6.5	---	---	---	---
	18-22	---	---	---	---	---	---	---
122F:								
Mocmont, cool---	0-9	15-20	15.0-20.0	5.1-6.5	---	---	---	---
	9-41	20-35	15.0-20.0	5.1-6.5	---	---	---	---
	41-60	10-25	10.0-15.0	5.1-6.5	---	---	---	---
Landusky--------	0-9	15-27	5.0-10.0	5.1-6.5	---	---	---	---
	9-60	---	0.0-1.0	---	---	---	---	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
130F:								
Rubble land.								
Mocmont, cool---	0-9	15-20	15.0-20.0	5.1-6.5	---	---	---	---
	9-41	20-35	15.0-20.0	5.1-6.5	---	---	---	---
	41-60	10-25	10.0-15.0	5.1-6.5	---	---	---	---
Rock outcrop.								
139F:								
Whitecow, warm--	0-4	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	4-22	18-35	10.0-15.0	7.4-8.4	35-50	---	0-2	---
	22-60	18-35	10.0-15.0	7.4-9.0	40-50	---	0-2	---
Warneke---------	0-3	10-25	10.0-15.0	7.4-8.4	5-15	---	---	---
	3-15	10-25	5.0-10.0	7.9-8.4	40-50	---	---	---
	15-19	---	---	---	---	---	---	---
140F:								
Whitecow--------	0-8	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	8-32	18-35	10.0-15.0	7.4-8.4	35-50	---	0-2	---
	32-60	18-35	10.0-15.0	7.4-9.0	40-50	---	0-2	---
Whitecow, warm--	0-4	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	4-22	18-35	10.0-15.0	7.4-8.4	35-50	---	0-2	---
	22-60	18-35	10.0-15.0	7.4-9.0	40-50	---	0-2	---
151F:								
Warneke---------	0-3	10-25	10.0-15.0	7.4-8.4	5-15	---	---	---
	3-15	10-25	5.0-10.0	7.9-8.4	40-50	---	---	---
	15-19	---	---	---	---	---	---	---
Whitecow, warm--	0-4	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	4-22	18-35	10.0-15.0	7.4-8.4	35-50	---	0-2	---
	22-60	18-35	10.0-15.0	7.4-9.0	40-50	---	0-2	---
Rock outcrop.								
160D:								
Whitecow, warm--	0-4	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	4-22	18-35	10.0-15.0	7.4-8.4	35-50	---	0-2	---
	22-60	18-35	10.0-15.0	7.4-9.0	40-50	---	0-2	---
160E:								
Whitecow, warm--	0-4	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	4-22	18-35	10.0-15.0	7.4-8.4	35-50	---	0-2	---
	22-60	18-35	10.0-15.0	7.4-9.0	40-50	---	0-2	---
170A:								
Dimmick---------	0-18	40-50	25.0-30.0	6.1-7.8	---	---	---	---
	18-60	40-60	20.0-25.0	6.6-8.4	---	---	---	---
180B:								
Binna-----------	0-8	15-27	15.0-20.0	7.4-8.4	5-10	---	---	---
	8-20	18-27	10.0-15.0	7.9-9.0	15-30	---	0-2	---
	20-60	0-10	1.0-5.0	7.9-9.0	5-20	---	0-2	---
Saypo-----------	0-8	27-35	20.0-25.0	7.4-8.4	5-10	---	---	---
	8-12	22-35	10.0-15.0	7.9-8.4	20-25	---	---	1-5
	12-30	22-35	10.0-15.0	7.9-9.0	30-35	---	0-2	0-13
	30-60	22-40	10.0-15.0	7.9-9.0	30-35	---	0-2	0-13

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
190B:								
Nesda	0-16	10-20	15.0-20.0	6.6-7.8	0-5	---	---	---
	16-60	0-10	1.0-5.0	7.4-8.4	0-5	---	0-2	---
Nesda, cool	0-12	10-20	15.0-20.0	6.6-7.8	0-5	---	---	---
	12-60	0-10	1.0-5.0	7.4-8.4	0-5	---	0-2	---
200F:								
Mined land.								
201D:								
Cabba	0-4	10-27	10.0-15.0	7.4-9.0	5-10	---	0-4	---
	4-14	20-35	5.0-10.0	7.4-9.0	5-15	---	0-8	---
	14-18	---	---	---	---	---	---	---
Windham	0-5	18-27	15.0-20.0	7.4-8.4	5-10	---	---	---
	5-11	18-35	15.0-20.0	7.9-8.4	35-60	---	---	---
	11-25	18-35	15.0-20.0	7.9-8.4	40-60	---	---	---
	25-60	18-35	10.0-15.0	7.9-8.4	40-60	---	0-2	---
211B:								
Thoeny	0-6	15-27	15.0-20.0	5.6-7.8	---	---	0-4	---
	6-14	35-50	25.0-30.0	7.4-9.0	---	---	4-8	5-20
	14-25	35-50	25.0-30.0	7.4-9.0	5-10	---	4-8	13-25
	25-60	35-50	20.0-25.0	7.9-9.0	5-15	1-6	4-16	13-25
Absher	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
212B:								
Thoeny	0-6	15-27	15.0-20.0	5.6-7.8	---	---	0-4	---
	6-14	35-50	25.0-30.0	7.4-9.0	---	---	4-8	5-20
	14-25	35-50	25.0-30.0	7.4-9.0	5-10	---	4-8	13-25
	25-60	35-50	20.0-25.0	7.9-9.0	5-15	1-6	4-16	13-25
Elloam	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
220E:								
Hillon	0-4	20-27	15.0-35.0	7.4-8.4	5-10	---	0-2	---
	4-28	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	28-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
Joplin	0-4	15-27	10.0-20.0	6.6-7.8	---	---	---	---
	4-8	25-35	10.0-20.0	6.6-7.8	---	---	---	---
	8-26	18-32	5.0-20.0	7.4-8.4	5-15	---	0-2	---
	26-60	18-32	5.0-20.0	7.4-9.0	5-10	0-3	0-4	---
221D:								
Hillon	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-32	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	32-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
Kevin	0-6	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-28	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	28-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
221E:								
Hillon----------	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-32	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	32-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
Kevin----------	0-6	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-28	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	28-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
224D:								
Hillon----------	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-32	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	32-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
Joplin----------	0-4	10-27	10.0-15.0	6.6-7.8	---	---	---	---
	4-9	25-35	15.0-20.0	6.6-7.8	---	---	---	---
	9-30	18-32	10.0-15.0	7.4-8.4	10-15	---	0-2	1-5
	30-60	18-32	10.0-15.0	7.4-9.0	5-10	0-3	0-4	5-10
241B:								
Benz----------	0-3	27-35	10.0-25.0	7.4-9.0	5-10	---	4-8	4-13
	3-60	18-35	10.0-20.0	8.5-9.6	5-15	2-5	8-16	13-30
Vanda----------	0-4	40-60	25.0-35.0	7.9-9.6	1-5	---	2-8	20-30
	4-9	35-60	20.0-30.0	7.9-9.6	1-5	0-5	2-8	13-30
	9-60	35-60	20.0-30.0	7.9-9.6	2-10	0-5	8-16	13-30
250E:								
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---
Weingart, thin--	0-7	40-45	30.0-35.0	5.6-7.8	---	---	0-2	10-20
	7-9	40-60	30.0-35.0	6.6-9.0	---	---	2-8	10-30
	9-17	35-55	30.0-35.0	7.9-9.0	5-15	0-1	4-16	13-30
	17-36	35-55	30.0-35.0	7.9-9.0	---	1-5	4-16	13-30
	36-40	---	---	---	---	---	---	---
251C:								
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---
270E:								
Beaverell-------	0-4	10-27	10.0-20.0	6.6-7.8	---	---	---	---
	4-13	20-35	15.0-25.0	6.6-7.8	---	---	---	---
	13-60	0-5	0.0-5.0	7.4-8.4	2-15	---	0-2	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
270E:(cont.)								
Tinsley---------	0-4	5-10	5.0-10.0	6.6-7.8	---	---	---	---
	4-60	0-10	1.0-5.0	7.4-8.4	0-10	---	0-2	---
271D:								
Beaverell-------	0-4	10-27	10.0-20.0	6.6-7.8	---	---	---	---
	4-13	20-35	15.0-25.0	6.6-7.8	---	---	---	---
	13-60	0-5	0.0-5.0	7.4-8.4	2-15	---	0-2	---
Evanston--------	0-5	20-27	15.0-20.0	6.6-7.8	---	---	---	---
	5-12	25-35	20.0-25.0	6.6-7.8	---	---	---	---
	12-24	20-35	20.0-25.0	7.4-8.4	5-15	---	0-2	---
	24-60	15-30	10.0-15.0	7.9-9.0	5-15	0-2	0-4	---
301C:								
Marvan, saline--	0-4	40-60	30.0-35.0	7.9-9.0	1-5	---	2-8	4-13
	4-10	45-60	30.0-35.0	7.9-9.0	5-10	---	2-8	13-38
	10-60	45-60	25.0-30.0	7.9-9.0	5-10	1-5	8-16	13-38
Marvan----------	0-4	40-60	25.0-30.0	7.4-8.4	1-5	---	0-4	0-13
	4-19	45-60	25.0-30.0	7.9-9.0	2-10	0-5	2-8	4-13
	19-60	45-60	25.0-30.0	7.9-9.0	2-10	1-5	4-16	13-38
302B:								
Marvan, saline--	0-4	40-60	30.0-35.0	7.9-9.0	1-5	---	2-8	4-13
	4-10	45-60	30.0-35.0	7.9-9.0	5-10	---	2-8	13-38
	10-60	45-60	25.0-30.0	7.9-9.0	5-10	1-5	8-16	13-38
Vanda----------	0-4	40-60	25.0-35.0	7.9-9.6	1-5	---	2-8	20-30
	4-9	35-60	20.0-30.0	7.9-9.6	1-5	0-5	2-8	13-30
	9-60	35-60	20.0-30.0	7.9-9.6	2-10	0-5	8-16	13-30
311B:								
Ferd------------	0-6	20-27	10.0-20.0	6.6-7.3	---	---	---	---
	6-13	35-50	15.0-30.0	6.6-8.4	---	---	0-2	---
	13-22	27-40	10.0-25.0	7.9-9.0	5-15	---	2-8	0-13
	22-60	27-40	10.0-25.0	7.9-9.6	5-15	0-3	4-8	8-13
Gerdrum---------	0-3	27-40	20.0-25.0	6.6-7.8	---	---	0-2	---
	3-12	35-55	25.0-35.0	7.4-9.0	---	---	1-8	10-20
	12-23	35-55	25.0-35.0	7.4-9.0	5-15	---	2-8	13-20
	23-60	30-50	20.0-25.0	7.9-9.0	5-15	1-5	8-16	13-30
312B:								
Ferd------------	0-6	20-27	10.0-20.0	6.6-7.3	---	---	---	---
	6-13	35-50	15.0-30.0	6.6-8.4	---	---	0-2	---
	13-22	27-40	10.0-25.0	7.9-9.0	5-15	---	2-8	0-13
	22-60	27-40	10.0-25.0	7.9-9.6	5-15	0-3	4-8	8-13
Absher----------	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
320A:								
Kobase----------	0-6	40-45	25.0-30.0	7.4-8.4	---	---	0-4	---
	6-24	35-45	20.0-25.0	7.4-8.4	2-10	---	0-4	5-10
	24-60	27-40	15.0-20.0	7.9-8.4	5-10	0-5	0-4	8-13

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
322C:								
Kobase----------	0-6	27-40	25.0-30.0	7.4-8.4	5-10	---	0-2	1-5
	6-16	35-45	20.0-25.0	7.4-8.4	5-15	---	0-2	5-10
	16-60	35-45	20.0-25.0	7.9-9.0	5-15	0-5	0-4	8-13
Megonot---------	0-4	35-40	25.0-30.0	6.6-7.8	0-5	---	---	---
	4-14	35-45	20.0-25.0	7.4-8.4	1-5	---	0-4	---
	14-28	35-45	20.0-25.0	7.4-8.4	5-15	1-5	0-4	---
	28-32	---	---	---	---	---	---	---
323B:								
Kobase----------	0-6	27-40	25.0-30.0	7.4-8.4	5-10	---	0-2	1-5
	6-16	35-45	20.0-25.0	7.4-8.4	5-15	---	0-2	5-10
	16-60	35-45	20.0-25.0	7.9-9.0	5-15	0-5	0-4	8-13
Marvan----------	0-4	40-60	25.0-30.0	7.4-8.4	1-5	---	0-4	0-13
	4-19	45-60	25.0-30.0	7.9-9.0	2-10	0-5	2-8	4-13
	19-60	45-60	25.0-30.0	7.9-9.0	2-10	1-5	4-16	13-38
Weingart, thin--	0-7	40-45	30.0-35.0	5.6-7.8	---	---	0-2	10-20
	7-9	40-60	30.0-35.0	6.6-9.0	---	---	2-8	10-30
	9-17	35-55	30.0-35.0	7.9-9.0	5-15	0-1	4-16	13-30
	17-36	35-55	30.0-35.0	7.9-9.0	---	1-5	4-16	13-30
	36-40	---	---	---	---	---	---	---
331B:								
Phillips--------	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
Absher----------	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
331C:								
Phillips--------	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
Absher----------	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
332B:								
Phillips--------	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
Elloam----------	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
333C:								
Phillips--------	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
333C:(cont.)								
Kevin----------	0-5	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	5-8	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	8-24	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	24-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
334C:								
Phillips--------	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
Kevin----------	0-6	27-32	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-33	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	33-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
351C:								
Fortbenton------	0-7	5-18	10.0-15.0	6.6-7.8	---	---	---	---
	7-23	5-18	5.0-10.0	6.6-7.8	---	---	---	---
	23-29	5-18	5.0-10.0	7.9-8.4	5-15	---	---	---
	29-60	27-35	15.0-20.0	7.9-9.0	5-15	0-5	0-2	---
373C:								
Evanston--------	0-5	20-27	15.0-20.0	6.6-7.8	---	---	---	---
	5-12	25-35	20.0-25.0	6.6-7.8	---	---	---	---
	12-24	20-35	20.0-25.0	7.4-8.4	5-15	---	0-2	---
	24-60	15-30	10.0-15.0	7.9-9.0	5-15	0-2	0-4	---
Chinook---------	0-6	5-18	10.0-15.0	6.6-8.4	---	---	0-2	---
	6-16	5-18	5.0-10.0	6.6-8.4	---	---	0-2	---
	16-44	5-18	5.0-10.0	7.4-9.0	3-15	---	0-2	---
	44-60	5-15	5.0-10.0	7.4-9.0	1-5	---	0-2	---
381B:								
Ethridge--------	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-8.4	---	---	---	---
	16-44	30-45	20.0-25.0	7.4-9.0	5-15	---	---	1-5
	44-60	25-40	20.0-25.0	7.4-9.0	5-15	0-3	2-4	1-5
Gerdrum---------	0-3	27-40	20.0-25.0	6.6-7.8	---	---	0-2	---
	3-12	35-55	25.0-35.0	7.4-9.0	---	---	1-8	10-20
	12-23	35-55	25.0-35.0	7.4-9.0	5-15	---	2-8	13-20
	23-60	30-50	20.0-25.0	7.9-9.0	5-15	1-5	8-16	13-30
383C:								
Ethridge--------	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-8.4	---	---	---	---
	16-44	30-45	20.0-25.0	7.4-9.0	5-15	---	---	1-5
	44-60	25-40	20.0-25.0	7.4-9.0	5-15	0-3	2-4	1-5
Beaverell-------	0-4	10-27	10.0-20.0	6.6-7.8	---	---	---	---
	4-13	20-35	15.0-25.0	6.6-7.8	---	---	---	---
	13-60	0-5	0.0-5.0	7.4-8.4	2-15	---	0-2	---
391B:								
Creed-----------	0-8	20-27	15.0-20.0	6.1-8.4	---	---	0-4	---
	8-14	35-55	25.0-35.0	6.6-9.0	---	---	2-4	8-13
	14-26	27-45	20.0-30.0	7.9-9.0	5-15	0-2	4-8	13-20
	26-60	25-35	15.0-20.0	7.9-9.0	5-15	1-5	4-16	13-25

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
391B:(cont.)								
Absher----------	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
392B:								
Creed----------	0-8	20-27	15.0-20.0	6.1-8.4	---	---	0-4	---
	8-14	35-55	25.0-35.0	6.6-9.0	---	---	2-4	8-13
	14-26	27-45	20.0-30.0	7.9-9.0	5-15	0-2	4-8	13-20
	26-60	25-35	15.0-20.0	7.9-9.0	5-15	1-5	4-16	13-25
Gerdrum---------	0-3	27-40	20.0-25.0	6.6-7.8	---	---	0-2	---
	3-12	35-55	25.0-35.0	7.4-9.0	---	---	1-8	10-20
	12-23	35-55	25.0-35.0	7.4-9.0	5-15	---	2-8	13-20
	23-60	30-50	20.0-25.0	7.9-9.0	5-15	1-5	8-16	13-30
402B:								
Gerdrum---------	0-3	27-40	20.0-25.0	6.6-7.8	---	---	0-2	---
	3-12	35-55	25.0-35.0	7.4-9.0	---	---	1-8	10-20
	12-23	35-55	25.0-35.0	7.4-9.0	5-15	---	2-8	13-20
	23-60	30-50	20.0-25.0	7.9-9.0	5-15	1-5	8-16	13-30
Absher----------	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
421C:								
Joplin----------	0-4	10-27	10.0-15.0	6.6-7.8	---	---	---	---
	4-8	25-35	15.0-20.0	6.6-7.8	---	---	---	---
	8-29	18-32	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	29-60	18-32	10.0-15.0	7.4-9.0	5-10	0-3	0-4	---
Hillon----------	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-26	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	26-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
424D:								
Joplin----------	0-4	10-27	10.0-15.0	6.6-7.8	---	---	---	---
	4-8	25-35	15.0-20.0	6.6-7.8	---	---	---	---
	8-29	18-32	10.0-15,0	7.4-8.4	10-15	---	0-2	---
	29-60	18-32	10.0-15.0	7.4-9.0	5-10	0-3	0-4	---
Telstad---------	0-6	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	6-14	25-35	20.0-25.0	6.6-8.4	---	---	---	---
	14-38	20-32	15.0-20.0	7.9-8.4	5-15	---	0-4	---
	38-60	20-32	15.0-20.0	7.9-9.0	3-12	0-3	2-4	---
426C:								
Joplin----------	0-4	10-27	10.0-15.0	6.6-7.8	---	---	---	---
	4-9	25-35	15.0-20.0	6.6-7.8	---	---	---	---
	9-30	18-32	10.0-15.0	7.4-8.4	10-15	---	0-2	1-5
	30-60	18-32	10.0-15.0	7.4-9.0	5-10	0-3	0-4	5-10
Hillon----------	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-32	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	32-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
442C:								
Kevin	0-6	27-32	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-33	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	33-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
Hillon	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-26	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	26-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
444C:								
Kevin	0-6	27-32	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-33	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	33-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
Sunburst	0-4	27-40	20.0-25.0	7.4-8.4	5-10	---	0-2	---
	4-28	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	28-60	35-50	20.0-25.0	7.9-9.0	3-15	1-6	2-8	---
446D:								
Kevin	0-5	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	5-8	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	8-24	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	24-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
Sunburst	0-3	27-40	20.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-26	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	26-60	35-50	15.0-20.0	7.9-9.0	3-15	1-6	2-8	---
481A:								
Bigsag	0-3	40-60	30.0-40.0	7.9-9.0	1-5	---	>16	13-20
	3-9	35-60	30.0-40.0	8.5-9.0	5-15	3-5	>16	20-40
	9-60	35-60	30.0-40.0	8.5-9.0	5-15	3-5	>16	13-30
502C:								
Telstad	0-6	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	6-14	25-35	20.0-25.0	6.6-8.4	---	---	---	---
	14-38	20-32	15.0-20.0	7.9-8.4	5-15	---	0-2	---
	38-60	20-32	15.0-20.0	7.9-9.0	3-12	0-3	2-4	---
Elloam	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
503C:								
Telstad	0-6	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	6-14	25-35	20.0-25.0	6.6-8.4	---	---	---	---
	14-38	20-32	15.0-20.0	7.9-8.4	5-15	---	0-2	---
	38-60	20-32	15.0-20.0	7.9-9.0	3-12	0-3	2-4	---
Joplin	0-4	10-27	10.0-15.0	6.6-7.8	---	---	---	---
	4-8	25-35	15.0-20.0	6.6-7.8	---	---	---	---
	8-29	18-32	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	29-60	18-32	10.0-15.0	7.4-9.0	5-10	0-3	0-4	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
504C:								
Telstad	0-6	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	6-14	25-35	20.0-25.0	6.6-8.4	---	---	---	---
	14-38	20-32	15.0-20.0	7.9-8.4	5-15	---	0-2	---
	38-60	20-32	15.0-20.0	7.9-9.0	3-12	0-3	2-4	---
Absher	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
505C:								
Telstad	0-6	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	6-14	25-35	20.0-25.0	6.6-8.4	---	---	---	---
	14-38	20-32	15.0-20.0	7.9-8.4	5-15	---	0-2	---
	38-60	20-32	15.0-20.0	7.9-9.0	3-12	0-3	2-4	---
Hillon	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-26	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	26-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
511B:								
Martinsdale	0-6	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	6-13	25-35	20.0-25.0	6.6-8.4	---	---	---	---
	13-44	20-35	15.0-20.0	7.4-9.0	15-35	0-1	2-8	---
	44-60	15-30	10.0-15.0	7.4-9.0	10-20	0-1	2-8	---
Judith	0-6	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	6-11	18-35	10.0-15.0	7.9-8.4	5-40	---	0-4	---
	11-31	18-35	10.0-15.0	7.9-8.4	40-60	---	0-4	---
	31-60	18-35	10.0-15.0	7.9-9.0	40-60	---	0-4	---
521B:								
Elloam	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
Absher	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
561B:								
Scobey	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	16-35	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	35-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8
Phillips	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
562C:								
Scobey	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	16-35	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	35-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
562C: (cont.)								
Elloam	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
563C:								
Scobey	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	16-35	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	35-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8
Kevin	0-6	27-32	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-33	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	33-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
564C:								
Scobey	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	16-35	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	35-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8
Kevin	0-6	27-32	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-33	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	33-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
Elloam	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
566C:								
Scobey	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-14	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	14-32	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	32-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8
Kevin	0-5	27-32	15.0-20.0	6.6-7.8	---	---	---	---
	5-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-30	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	30-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
567C:								
Scobey	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-14	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	14-32	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	32-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8
Elloam	0-7	30-40	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-13	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	13-22	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	22-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
Absher	0-7	27-40	20.0-25.0	6.6-8.4	---	---	4-8	1-5
	7-10	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	10-60	35-50	20.0-25.0	7.8-9.6	4-15	1-5	16-32	18-70
600:								
Pits, gravel.								

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
601A:								
Havre----------	0-7	15-27	15.0-20.0	7.4-8.4	1-5	---	0-2	---
	7-60	18-35	15.0-25.0	7.4-9.0	2-10	---	0-4	0-13
Harlake---------	0-10	27-40	20.0-25.0	7.4-8.4	1-5	---	0-4	0-4
	10-46	35-60	25.0-35.0	7.4-8.4	2-10	---	0-4	0-13
	46-60	15-35	15.0-20.0	7.9-9.0	2-10	1-3	0-8	0-13
Glendive--------	0-4	10-27	15.0-20.0	7.4-9.0	1-5	---	0-4	---
	4-26	5-18	10.0-15.0	7.4-9.0	2-10	---	0-4	---
	26-60	5-18	10.0-15.0	7.4-9.0	2-10	---	2-8	---
603A:								
Havre----------	0-6	40-55	25.0-30.0	7.4-8.4	0-5	---	0-2	---
	6-60	18-35	15.0-25.0	7.4-9.0	0-5	---	0-4	---
604A:								
Bullhook--------	0-4	15-27	10.0-25.0	7.4-9.4	0-5	---	2-8	8-13
	4-14	18-35	10.0-30.0	7.4-9.6	5-10	---	4-16	13-20
	14-60	18-35	10.0-30.0	7.4-9.6	5-10	2-5	8-16	13-30
610:								
Pits, bentonite.								
650C:								
Yetull----------	0-8	0-10	5.0-10.0	6.6-7.8	---	---	---	---
	8-60	0-10	1.0-5.0	7.4-8.4	3-10	---	0-4	---
650D:								
Yetull----------	0-8	0-10	5.0-10.0	6.6-7.8	---	---	---	---
	8-60	0-10	1.0-5.0	7.4-8.4	3-10	---	0-4	---
731C:								
Judith----------	0-6	18-27	15.0-20.0	7.4-8.4	0-5	---	0-2	---
	6-11	18-35	10.0-15.0	7.9-8.4	5-60	---	0-4	---
	11-31	18-35	10.0-15.0	7.9-8.4	40-60	---	0-4	---
	31-60	18-35	10.0-15.0	7.9-9.0	40-60	---	0-4	---
Windham---------	0-5	18-27	15.0-20.0	7.4-8.4	5-10	---	---	---
	5-11	18-35	15.0-20.0	7.9-8.4	35-60	---	---	---
	11-25	18-35	15.0-20.0	7.9-8.4	40-60	---	---	---
	25-60	18-35	10.0-15.0	7.9-8.4	40-60	---	0-2	---
791E:								
Yamacall, calcareous-----	0-7	18-27	15.0-20.0	7.4-8.4	5-10	---	---	---
	7-42	18-35	10.0-15.0	7.9-9.0	10-15	0-1	0-4	1-5
	42-60	10-27	10.0-15.0	7.9-9.0	5-10	0-1	0-4	1-5
Yamacall--------	0-3	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	3-11	18-35	10.0-15.0	6.6-8.4	0-5	---	---	---
	11-60	18-35	10.0-15.0	7.9-9.0	5-15	0-1	0-4	1-5
792C:								
Yamacall, calcareous-----	0-7	18-27	15.0-20.0	7.4-8.4	5-10	---	---	---
	7-42	18-35	10.0-15.0	7.9-9.0	10-15	0-1	0-4	1-5
	42-60	10-27	10.0-15.0	7.9-9.0	5-10	0-1	0-4	1-5

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
792C:(cont.)								
Yamacall--------	0-3	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	3-11	18-35	10.0-15.0	6.6-8.4	0-5	---	---	---
	11-60	18-35	10.0-15.0	7.9-9.0	5-15	0-1	0-4	1-5
811A:								
Glendive--------	0-4	10-27	15.0-20.0	7.4-9.0	1-5	---	0-4	---
	4-26	5-18	10.0-15.0	7.4-9.0	2-10	---	0-4	---
	26-60	5-18	10.0-15.0	7.4-9.0	2-10	---	2-8	---
Havre-----------	0-6	15-27	15.0-20.0	7.4-8.4	1-5	---	0-2	---
	6-60	18-35	15.0-25.0	7.4-9.0	2-10	---	0-4	---
821D:								
Savage----------	0-3	27-35	25.0-30.0	6.1-7.8	---	---	---	---
	3-14	35-50	30.0-35.0	6.1-8.4	---	---	0-4	---
	14-60	30-45	25.0-30.0	7.4-8.4	5-15	0-3	0-4	---
Farnuf----------	0-6	15-27	10.0-15.0	6.1-7.8	---	---	---	---
	6-19	25-35	15.0-20.0	6.1-7.8	---	---	---	---
	19-32	20-30	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	32-60	15-30	10.0-15.0	7.4-9.0	5-10	---	2-8	5-10
860C:								
Weingart--------	0-4	27-40	30.0-35.0	5.6-7.8	---	---	0-2	10-20
	4-12	40-60	30.0-35.0	6.6-9.0	---	---	2-8	10-30
	12-20	35-55	30.0-35.0	7.9-9.0	5-15	0-1	4-16	13-30
	20-34	35-55	30.0-35.0	7.9-9.0	2-10	1-5	4-16	13-30
	34-38	---	---	---	---	---	---	---
Weingart, thin--	0-7	40-45	30.0-35.0	5.6-7.8	---	---	0-2	10-20
	7-9	40-60	30.0-35.0	6.6-9.0	---	---	2-8	10-30
	9-17	35-55	30.0-35.0	7.9-9.0	5-15	0-1	4-16	13-30
	17-36	35-55	30.0-35.0	7.9-9.0	2-10	1-5	4-16	13-30
	36-40	---	---	---	---	---	---	---
871B:								
Tamaneen--------	0-7	27-35	25.0-30.0	6.6-7.8	---	---	---	---
	7-16	35-50	30.0-35.0	6.6-7.8	---	---	---	---
	16-23	30-45	25.0-30.0	7.4-8.4	20-30	---	0-2	---
	23-38	18-35	20.0-25.0	7.9-8.4	25-40	---	0-2	---
	38-60	8-25	5.0-10.0	7.9-8.4	25-40	---	0-2	---
Danvers---------	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-50	20.0-30.0	6.6-8.4	---	---	0-2	---
	16-48	35-45	20.0-25.0	7.4-8.4	10-40	---	0-2	---
	48-60	10-35	10.0-15.0	7.4-8.4	15-35	---	0-2	---
901A:								
Lallie----------	0-16	27-40	20.0-25.0	6.6-9.0	0-5	---	0-8	---
	16-60	35-60	20.0-30.0	7.4-9.0	2-10	---	0-8	---
902A:								
Lostriver-------	0-6	40-55	30.0-40.0	7.4-9.4	0-5	---	2-8	8-13
	6-21	35-55	25.0-35.0	7.4-9.6	0-5	---	4-16	13-20
	21-60	35-55	25.0-35.0	7.4-9.6	5-10	2-5	8-16	13-30
Bullhook--------	0-4	15-27	10.0-25.0	7.4-9.4	0-5	---	2-8	8-13
	4-14	18-35	10.0-30.0	7.4-9.6	5-10	---	4-16	13-20
	14-60	18-35	10.0-30.0	7.4-9.6	5-10	2-5	8-16	13-30

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
903A:								
Harlake---------	0-8	40-55	30.0-35.0	7.4-8.4	1-5	---	0-4	0-4
	8-50	35-60	25.0-35.0	7.4-9.0	2-10	---	0-4	0-13
	50-60	15-35	15.0-20.0	7.9-9.0	2-10	1-3	0-8	0-13
Lostriver-------	0-6	40-55	30.0-40.0	7.4-9.4	0-5	---	2-8	8-13
	6-21	35-55	25.0-35.0	7.4-9.6	0-5	---	4-16	13-20
	21-60	35-55	25.0-35.0	7.4-9.6	5-10	2-5	8-16	13-30
905A:								
Harlake---------	0-6	30-40	20.0-25.0	7.4-8.4	1-5	---	2-4	---
	6-48	35-45	25.0-30.0	7.4-8.4	5-10	---	2-4	1-5
	48-60	15-25	15.0-20.0	7.9-9.0	5-10	1-3	4-8	5-13
Havre-----------	0-6	27-40	20.0-25.0	7.4-8.4	1-5	---	0-2	---
	6-60	18-32	15.0-20.0	7.4-8.4	1-5	---	0-4	---
921D:								
Sunburst--------	0-4	27-40	20.0-25.0	7.4-8.4	5-10	---	0-2	---
	4-21	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	21-60	35-50	15.0-20.0	7.9-9.0	3-15	1-6	2-8	---
Kevin-----------	0-6	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-28	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	28-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
923C:								
Sunburst--------	0-4	27-40	20.0-25.0	7.4-8.4	5-10	---	0-2	---
	4-21	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	21-60	35-50	15.0-20.0	7.9-9.0	3-15	1-6	2-8	---
Kevin-----------	0-6	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-28	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	28-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
923F:								
Sunburst--------	0-3	40-50	25.0-30.0	7.4-8.4	---	---	0-2	---
	3-24	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	24-60	35-50	15.0-20.0	7.9-9.0	3-15	1-6	2-8	---
Kevin-----------	0-6	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-28	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	28-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
924E:								
Sunburst--------	0-3	40-50	25.0-30.0	7.4-8.4	---	---	0-2	---
	3-24	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	24-60	35-50	15.0-20.0	7.9-9.0	3-15	1-6	2-8	---
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
925C:								
Sunburst--------	0-3	40-50	25.0-30.0	7.4-8.4	---	---	0-2	---
	3-24	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	24-60	35-50	15.0-20.0	7.9-9.0	3-15	1-6	2-8	---
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
Weingart, thin--	0-7	40-45	30.0-35.0	5.6-7.8	---	---	0-2	10-20
	7-9	40-60	30.0-35.0	6.6-9.0	---	---	2-8	10-30
	9-17	35-55	30.0-35.0	7.9-9.0	5-15	0-1	4-16	13-30
	17-36	35-55	30.0-35.0	7.9-9.0	---	1-5	4-16	13-30
	36-40	---	---	---	---	---	---	---
926F:								
Sunburst--------	0-3	40-50	25.0-30.0	7.4-8.4	---	---	0-2	---
	3-24	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	24-60	35-50	15.0-20.0	7.9-9.0	3-15	1-6	2-8	---
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---
Rock outcrop.								
930A:								
Wheatbelt-------	0-6	60-85	35.0-70.0	7.9-9.0	---	---	2-8	4-13
	6-24	60-85	35.0-70.0	7.9-9.0	---	0-5	2-8	13-30
	24-60	60-85	35.0-70.0	7.9-9.0	0-2	2-5	8-16	13-30
971F:								
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---
Cabbart---------	0-3	18-27	10.0-15.0	7.4-9.0	5-10	---	0-4	---
	3-16	18-35	5.0-10.0	7.4-9.0	15-25	0-5	2-8	1-5
	16-20	---	---	---	---	---	---	---
Tinsley---------	0-4	5-10	5.0-10.0	6.6-7.8	---	---	---	---
	4-60	0-10	1.0-5.0	7.4-8.4	0-10	---	0-2	---
973E:								
Neldore, cool---	0-4	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	4-10	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	10-17	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	17-21	---	---	---	---	---	---	---
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
974F:								
Pinebreaks------	0-3	40-50	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-9	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	9-18	40-60	30.0-35.0	4.5-5.5	---	---	0-2	---
	18-22	---	---	---	---	---	---	---
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-9	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	9-13	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	13-17	---	---	---	---	---	---	---
1021E:								
Cabbart---------	0-3	18-27	10.0-15.0	7.4-9.0	5-10	---	0-4	---
	3-16	18-35	5.0-10.0	7.4-9.0	15-25	0-5	2-8	1-5
	16-20	---	---	---	---	---	---	---
Twilight--------	0-4	5-18	10.0-15.0	6.6-7.8	---	---	---	---
	4-11	5-18	5.0-10.0	6.6-7.8	---	---	---	---
	11-22	5-18	5.0-10.0	7.4-8.4	5-10	---	0-4	---
	22-26	---	---	---	---	---	---	---
Yawdim----------	0-3	27-40	20.0-25.0	7.4-7.8	1-5	---	---	---
	3-17	35-50	20.0-25.0	7.4-8.4	3-10	---	---	---
	17-21	---	---	---	---	---	---	---
1022F:								
Hillon----------	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-26	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	26-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
Cabbart---------	0-3	18-27	10.0-15.0	7.4-9.0	5-10	---	0-4	---
	3-16	18-35	5.0-10.0	7.4-9.0	10-15	0-5	0-4	1-5
	16-20	---	---	---	---	---	---	---
Rock outcrop.								
1030D:								
Marvan----------	0-4	40-60	25.0-30.0	7.4-8.4	1-5	---	0-4	0-13
	4-19	45-60	25.0-30.0	7.9-9.0	2-10	0-5	2-8	4-13
	19-60	45-60	25.0-30.0	7.9-9.0	2-10	1-5	4-16	13-38
Gerdrum---------	0-3	27-40	20.0-25.0	6.6-7.8	---	---	0-2	---
	3-12	35-55	25.0-35.0	7.4-9.0	---	---	1-8	10-20
	12-23	35-55	25.0-35.0	7.4-9.0	5-15	---	2-8	13-20
	23-60	30-50	20.0-25.0	7.9-9.0	5-15	1-5	8-16	13-30
1037D:								
Evanston--------	0-5	20-27	15.0-20.0	6.6-7.8	---	---	---	---
	5-12	25-35	20.0-25.0	6.6-7.8	---	---	---	---
	12-24	20-35	20.0-25.0	7.4-8.4	5-15	---	0-2	---
	24-60	15-30	10.0-15.0	7.9-9.0	5-15	0-2	0-4	---
Yamacall--------	0-3	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	3-11	18-35	10.0-15.0	6.6-8.4	0-5	---	---	---
	11-60	18-35	10.0-15.0	7.9-9.0	5-15	0-1	0-4	1-5
1052B:								
Elloam----------	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
1052B: (cont.)								
Thoeny----------	0-6	15-27	15.0-20.0	5.6-7.8	---	---	0-4	---
	6-14	35-50	25.0-30.0	7.4-9.0	---	---	4-8	5-20
	14-25	35-50	25.0-30.0	7.4-9.0	5-10	---	4-8	13-25
	25-60	35-50	20.0-25.0	7.9-9.0	5-15	1-6	4-16	13-25
1059E:								
Weingart--------	0-4	27-40	30.0-35.0	5.6-7.8	---	---	0-2	10-20
	4-12	40-60	30.0-35.0	6.6-9.0	---	---	2-8	10-30
	12-20	35-55	30.0-35.0	7.9-9.0	5-15	0-1	4-16	13-30
	20-34	35-55	30.0-35.0	7.9-9.0	2-10	1-5	4-16	13-30
	34-38	---	---	---	---	---	---	---
Vaeda-----------	0-7	40-60	25.0-30.0	5.6-7.8	---	---	2-4	---
	7-16	35-60	25.0-30.0	5.1-7.8	0-5	1-5	4-16	10-20
	16-60	35-60	25.0-30.0	6.1-9.0	0-5	1-5	4-16	10-20
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
1066D:								
Twilight--------	0-4	5-18	10.0-15.0	6.6-7.8	---	---	---	---
	4-11	5-18	5.0-10.0	6.6-7.8	---	---	---	---
	11-22	5-18	5.0-10.0	7.4-8.4	5-10	---	0-4	---
	22-26	---	---	---	---	---	---	---
Cabbart---------	0-3	18-27	10.0-15.0	7.4-9.0	5-10	---	0-4	---
	3-16	18-35	5.0-10.0	7.4-9.0	15-25	0-5	2-8	1-5
	16-20	---	---	---	---	---	---	---
Marmarth--------	0-4	20-27	15.0-20.0	6.1-7.3	---	---	---	---
	4-18	20-35	15.0-20.0	6.1-7.8	---	---	---	---
	18-32	15-30	10.0-15.0	7.4-8.4	5-15	---	---	---
	32-36	---	---	---	---	---	---	---
1090B:								
Harlake---------	0-9	40-55	30.0-35.0	7.4-8.4	1-5	---	0-4	0-4
	9-42	35-60	25.0-35.0	7.4-8.4	2-10	---	0-4	4-10
	42-60	15-35	15.0-20.0	7.9-9.0	2-10	1-3	0-8	4-10
Marvan----------	0-4	40-60	25.0-30.0	7.4-8.4	1-5	---	0-13	0-4
	4-19	45-60	25.0-30.0	7.9-9.0	2-10	0-5	2-8	4-13
	19-60	45-60	25.0-30.0	7.9-9.0	2-10	1-5	4-16	13-38
1221F:								
Hillon----------	0-3	20-27	10.0-25.0	7.4-8.4	5-10	---	0-2	---
	3-32	20-35	10.0-30.0	7.9-9.0	5-15	---	0-2	---
	32-60	20-35	10.0-30.0	7.9-9.0	5-15	1-5	0-2	---
Kevin-----------	0-6	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-28	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	28-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
1251E:								
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
1251E: (cont.)								
Bascovy	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
1261B:								
Absher	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
Nobe	0-7	40-50	25.0-30.0	6.6-8.4	0-5	---	4-8	10-15
	7-22	35-60	25.0-30.0	7.9-9.6	1-5	0-6	16-30	13-40
	22-60	35-60	25.0-30.0	7.9-9.6	1-5	1-6	16-30	13-70
1262A:								
Toston	0-2	18-27	15.0-20.0	7.9-9.0	---	---	4-8	0-8
	2-8	35-45	20.0-25.0	8.4-9.6	---	---	4-16	13-30
	8-24	27-35	15.0-20.0	8.4-9.6	5-15	1-5	8-16	13-30
	24-60	10-30	5.0-10.0	7.9-9.6	2-15	1-5	8-16	13-30
Nobe	0-6	40-50	25.0-30.0	6.6-8.4	0-5	---	4-8	10-15
	6-28	35-60	25.0-30.0	7.9-9.6	1-5	0-6	16-30	13-40
	28-60	35-60	25.0-30.0	7.9-9.6	1-5	1-6	16-30	13-70
1332C:								
Phillips	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
Elloam	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
Thoeny	0-6	15-27	15.0-20.0	5.6-7.8	---	---	0-4	---
	6-14	35-50	25.0-30.0	7.4-9.0	---	---	4-8	5-20
	14-25	35-50	25.0-30.0	7.4-9.0	5-10	---	4-8	13-25
	25-60	35-50	20.0-25.0	7.9-9.0	5-15	1-6	4-16	13-25
1333C:								
Kevin	0-6	27-32	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-33	27-35	10.0-15.0	7.4-8.4	5-15	---	0-2	---
	33-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
Phillips	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
Elloam	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
1373C:								
Evanston--------	0-5	20-27	15.0-20.0	6.6-7.8	---	---	---	---
	5-12	25-35	20.0-25.0	6.6-7.8	---	---	---	---
	12-24	20-35	20.0-25.0	7.4-8.4	5-15	---	0-2	---
	24-60	15-30	10.0-15.0	7.9-9.0	5-15	0-2	0-4	---
Chinook---------	0-6	5-18	10.0-15.0	6.6-8.4	---	---	0-2	---
	6-16	5-18	5.0-10.0	6.6-8.4	---	---	0-2	---
	16-44	5-18	5.0-10.0	7.4-9.0	3-15	---	0-2	---
	44-60	5-15	5.0-10.0	7.4-9.0	1-5	---	0-2	---
Marmarth--------	0-4	20-27	15.0-20.0	6.1-7.3	---	---	---	---
	4-18	20-35	15.0-20.0	6.1-7.8	---	---	---	---
	18-32	15-30	10.0-15.0	7.4-8.4	5-15	---	---	---
	32-36	---	---	---	---	---	---	---
1392B:								
Creed-----------	0-8	20-27	15.0-20.0	6.1-8.4	---	---	0-4	---
	8-14	35-55	25.0-35.0	6.6-9.0	---	---	2-4	8-13
	14-26	27-45	20.0-30.0	7.9-9.0	5-15	0-2	4-8	13-20
	26-60	25-35	15.0-20.0	7.9-9.0	5-15	1-5	4-16	13-25
Gerdrum---------	0-3	27-40	20.0-25.0	6.6-7.8	---	---	0-2	---
	3-12	35-55	25.0-35.0	7.4-9.0	---	---	1-8	10-20
	12-23	35-55	25.0-35.0	7.4-9.0	5-15	---	2-8	13-20
	23-60	30-50	20.0-25.0	7.9-9.0	5-15	1-5	8-16	13-30
Absher----------	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
1400F:								
Rock outcrop.								
Arsite----------	0-3	40-60	25.0-35.0	6.1-7.8	---	---	8-16	1-5
	3-19	40-60	20.0-30.0	5.6-7.8	---	---	12-18	5-13
	19-23	---	---	---	---	---	---	---
1441D:								
Kevin-----------	0-6	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-28	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	28-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---
Scobey----------	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	16-35	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	35-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8
Phillips--------	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
1443E:								
Kevin-----------	0-6	27-35	15.0-20.0	6.6-7.8	---	---	---	---
	6-9	35-45	20.0-25.0	6.6-8.4	---	---	---	---
	9-28	27-35	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	28-60	27-35	10.0-15.0	7.9-9.0	5-15	1-5	0-2	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
1433E: (cont.)								
Scobey----------	0-6	27-35	20.0-25.0	6.1-7.8	---	---	---	---
	6-16	35-45	25.0-30.0	6.6-7.8	---	---	0-2	---
	16-35	30-40	15.0-20.0	7.4-8.4	5-15	---	0-2	---
	35-60	30-40	15.0-20.0	7.4-9.0	5-12	1-5	0-2	1-8
Nishon----------	0-4	27-35	15.0-20.0	6.1-7.8	---	---	---	---
	4-30	40-60	30.0-35.0	6.6-9.0	---	---	0-2	---
	30-60	35-55	30.0-35.0	7.4-9.0	2-19	0-3	2-4	---
1503D:								
Telstad---------	0-6	18-27	15.0-20.0	6.6-7.8	---	---	---	---
	6-14	25-35	20.0-25.0	6.6-8.4	---	---	---	---
	14-38	20-32	15.0-20.0	7.9-8.4	5-15	---	0-2	---
	38-60	20-32	15.0-20.0	7.9-9.0	3-12	0-3	2-4	---
Joplin----------	0-4	10-27	10.0-15.0	6.6-7.8	---	---	---	---
	4-8	25-35	15.0-20.0	6.6-7.8	---	---	---	---
	8-29	18-32	10.0-15.0	7.4-8.4	10-15	---	0-2	---
	29-60	18-32	10.0-15.0	7.4-9.0	5-10	0-3	0-4	---
1523C:								
Elloam----------	0-7	27-35	20.0-25.0	6.1-7.8	---	---	0-2	5-8
	7-12	35-55	25.0-30.0	6.6-9.0	---	---	2-8	8-25
	12-20	30-45	20.0-25.0	7.9-9.0	5-15	---	4-8	13-25
	20-60	25-40	15.0-20.0	7.4-8.4	5-10	1-3	8-16	13-25
Phillips--------	0-6	15-27	10.0-15.0	6.1-7.3	---	---	0-2	---
	6-15	35-45	25.0-30.0	6.6-8.4	---	---	0-2	---
	15-25	25-40	15.0-20.0	7.4-9.0	5-15	0-3	0-4	0-13
	25-60	20-35	15.0-20.0	7.4-9.0	5-10	1-3	4-8	0-13
Absher----------	0-7	40-55	25.0-30.0	6.6-8.4	---	---	4-8	1-5
	7-9	35-60	25.0-30.0	6.6-9.0	---	---	8-16	18-70
	9-60	35-50	20.0-25.0	7.9-9.6	4-15	1-5	16-32	18-70
1850F:								
Cabbart---------	0-4	18-27	10.0-15.0	7.4-9.0	5-10	---	0-4	---
	4-18	18-35	5.0-10.0	7.4-9.0	15-25	0-5	2-8	1-5
	18-22	---	---	---	---	---	---	---
Twilight--------	0-3	5-18	10.0-15.0	6.6-7.8	---	---	---	---
	3-15	5-18	5.0-10.0	6.6-7.8	---	---	---	---
	15-28	5-18	5.0-10.0	7.4-8.4	5-10	---	0-4	---
	28-32	---	---	---	---	---	---	---
Delpoint--------	0-4	20-27	15.0-20.0	6.6-8.4	0-5	---	---	---
	4-16	18-35	15.0-20.0	7.4-8.4	2-10	---	---	---
	16-29	18-35	10.0-15.0	7.9-9.0	5-15	---	0-4	---
	29-33	---	---	---	---	---	---	---
1920F:								
Sunburst--------	0-4	40-50	25.0-30.0	7.4-8.4	---	---	0-2	---
	4-22	35-50	20.0-25.0	7.9-8.4	5-15	---	2-4	---
	22-60	35-50	20.0-25.0	7.9-9.0	3-15	1-6	2-8	---
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
1970F:								
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-8	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	8-15	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	15-19	---	---	---	---	---	---	---
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---
Rock outcrop.								
1971F:								
Yawdim----------	0-3	40-50	25.0-30.0	7.4-7.8	1-5	---	---	---
	3-15	35-50	20.0-25.0	7.4-8.4	3-10	---	---	---
	15-60	---	---	---	---	---	---	---
Cabbart---------	0-3	18-27	10.0-15.0	7.4-9.0	5-10	---	0-4	---
	3-16	18-35	5.0-10.0	7.4-9.0	15-25	0-5	2-8	1-5
	16-60	---	---	---	---	---	---	---
Rock outcrop.								
1972F:								
Volborg---------	0-4	40-50	30.0-35.0	4.5-6.5	---	---	0-4	0-4
	4-12	35-50	30.0-35.0	3.6-5.5	---	---	2-4	0-13
	12-16	---	---	---	---	---	---	---
Rock outcrop.								
1973F:								
Neldore, cool---	0-4	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	4-10	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	10-17	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	17-21	---	---	---	---	---	---	---
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-9	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	9-13	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	13-17	---	---	---	---	---	---	---
Rock outcrop.								
1976F:								
Neldore---------	0-3	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-9	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	9-13	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	13-17	---	---	---	---	---	---	---
Pinebreaks------	0-3	40-50	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-9	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	9-18	40-60	30.0-35.0	4.5-5.5	---	---	0-2	---
	18-22	---	---	---	---	---	---	---
Bascovy---------	0-4	40-60	30.0-40.0	6.6-8.4	---	---	2-4	1-5
	4-15	40-60	30.0-35.0	6.1-8.4	0-5	---	2-4	5-10
	15-28	40-60	30.0-35.0	5.1-8.4	0-5	1-5	2-8	10-15
	28-32	---	---	---	---	---	---	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	*Pct*	*meq/100g*	*pH*	*Pct*	*Pct*	*mmhos/cm*	
1977F:								
Volborg---------	0-3	40-50	30.0-35.0	4.5-6.5	---	---	0-4	0-4
	3-15	35-50	30.0-35.0	3.6-5.5	---	---	2-4	0-13
	15-19	---	---	---	---	---	---	---
Pinebreaks------	0-3	40-50	30.0-35.0	5.6-7.8	---	---	0-2	---
	3-9	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	9-18	40-60	30.0-35.0	4.5-5.5	---	---	0-2	---
	18-22	---	---	---	---	---	---	---
Rock outcrop.								
2972F:								
Volborg---------	0-4	40-50	30.0-35.0	4.5-6.5	---	---	0-4	0-4
	4-12	35-50	30.0-35.0	3.6-5.5	---	---	2-4	0-13
	12-16	---	---	---	---	---	---	---
Neldore---------	0-4	40-60	30.0-35.0	5.6-7.8	---	---	0-2	---
	4-11	40-60	30.0-35.0	5.6-7.3	---	---	0-4	---
	11-16	40-60	30.0-35.0	5.6-7.3	---	1-3	0-4	---
	16-20	---	---	---	---	---	---	---
Rock outcrop.								
W:								
Water.								

Water Features

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
10C:									
Barkof	D	None	---	---	>6.0	---	---	---	---
11B:									
Degrand	B	None	---	---	>6.0	---	---	---	---
13B:									
Beaverton	B	None	---	---	>6.0	---	---	---	---
25C:									
Bascovy	D	None	---	---	>6.0	---	---	---	---
28A:									
Nishon	D	None	---	---	0.0-2.0	Apparent	Apr-Jul	Long	1.0
29A:									
McKenzie	D	None	---	---	0.0-2.0	Apparent	Apr-Jul	Long	0.5
30A:									
Marvan	D	None	---	---	>6.0	---	---	---	---
31B:									
Ferd	C	None	---	---	>6.0	---	---	---	---
32B:									
Kobase	C	None	---	---	>6.0	---	---	---	---
33B:									
Phillips	C	None	---	---	>6.0	---	---	---	---
35C:									
Assinniboine	B	None	---	---	>6.0	---	---	---	---
36C:									
Chinook	B	None	---	---	>6.0	---	---	---	---
37B:									
Evanston	B	None	---	---	>6.0	---	---	---	---
37C:									
Evanston	B	None	---	---	>6.0	---	---	---	---
38B:									
Ethridge	C	None	---	---	>6.0	---	---	---	---
38C:									
Ethridge	C	None	---	---	>6.0	---	---	---	---
41A:									
Vaeda	D	None	---	---	>6.0	---	---	---	---
43A:									
Pendroy	D	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
48A:									
Vanda	D	None	---	---	>6.0	---	---	---	---
49A:									
Lardell	C	Rare	Brief	Jan-Jul	1.5-3.0	Apparent	Apr-Sep	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
50B:									
Telstad	C	None	---	---	>6.0	---	---	---	---
52B:									
Elloam	D	None	---	---	>6.0	---	---	---	---
56B:									
Scobey	C	None	---	---	>6.0	---	---	---	---
59B:									
Weingart	D	None	---	---	>6.0	---	---	---	---
60A:									
Havre	B	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
75C:									
Farnuf	B	None	---	---	>6.0	---	---	---	---
79C:									
Yamacall	B	None	---	---	>6.0	---	---	---	---
81A:									
Glendive	B	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
82B:									
Savage	C	None	---	---	>6.0	---	---	---	---
82C:									
Savage	C	None	---	---	>6.0	---	---	---	---
84F:									
Macmeal, warm	B	None	---	---	>6.0	---	---	---	---
Macmeal	B	None	---	---	>6.0	---	---	---	---
90A:									
Harlake	C	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
93A:									
Bowdoin	D	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
94C:									
Busby	B	None	---	---	>6.0	---	---	---	---
94D:									
Busby	B	None	---	---	>6.0	---	---	---	---
96D:									
Megonot	C	None	---	---	>6.0	---	---	---	---
Kobase	C	None	---	---	>6.0	---	---	---	---
97D:									
Neldore	D	None	---	---	>6.0	---	---	---	---
Bascovy	D	None	---	---	>6.0	---	---	---	---
100A:									
Hanly	A	Rare	Brief	Jan-Jul	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
101E:									
Barkof	D	None	---	---	>6.0	---	---	---	---
Windham	B	None	---	---	>6.0	---	---	---	---
110C:									
Attewan	B	None	---	---	>6.0	---	---	---	---
Beaverell	B	None	---	---	>6.0	---	---	---	---
115F:									
Silverchief	C	None	---	---	>6.0	---	---	---	---
Whitecow, warm	B	None	---	---	>6.0	---	---	---	---
Macmeal	B	None	---	---	>6.0	---	---	---	---
120F:									
Mocmont, cool	B	None	---	---	>6.0	---	---	---	---
Mocmont	B	None	---	---	>6.0	---	---	---	---
121F:									
Mocmont	B	None	---	---	>6.0	---	---	---	---
Mocmont, cool	B	None	---	---	>6.0	---	---	---	---
Tolex	D	None	---	---	>6.0	---	---	---	---
122F:									
Mocmont, cool	B	None	---	---	>6.0	---	---	---	---
Landusky	A	None	---	---	>6.0	---	---	---	---
130F:									
Rubble land.									
Mocmont, cool	B	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
139F:									
Whitecow, warm	B	None	---	---	>6.0	---	---	---	---
Warneke	D	None	---	---	>6.0	---	---	---	---
140F:									
Whitecow	B	None	---	---	>6.0	---	---	---	---
Whitecow, warm	B	None	---	---	>6.0	---	---	---	---
151F:									
Warneke	D	None	---	---	>6.0	---	---	---	---
Whitecow, warm	B	None	---	---	>6.0	---	---	---	---
Rock outcrop.									

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
160D:									
Whitecow, warm--	B	None	---	---	>6.0	---	---	---	---
160E:									
Whitecow, warm--	B	None	---	---	>6.0	---	---	---	---
170A:									
Dimmick---------	D	None	---	---	2.0-1.0	Apparent	Apr-Jul	Long	1.0
180B:									
Binna-----------	B	None	---	---	>6.0	---	---	---	---
Saypo-----------	C	None	---	---	2.0-3.5	Apparent	Apr-Aug	---	---
190B:									
Nesda-----------	B	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
Nesda, cool-----	B	Occasional	Brief	Apr-Jun	>6.0	---	---	---	---
200F:									
Mined land.									
201D:									
Cabba-----------	D	None	---	---	>6.0	---	---	---	---
Windham---------	B	None	---	---	>6.0	---	---	---	---
211B:									
Thoeny----------	D	None	---	---	>6.0	---	---	---	---
Absher----------	D	None	---	---	>6.0	---	---	---	---
212B:									
Thoeny----------	D	None	---	---	>6.0	---	---	---	---
Elloam----------	D	None	---	---	>6.0	---	---	---	---
220E:									
Hillon----------	C	None	---	---	>6.0	---	---	---	---
Joplin----------	C	None	---	---	>6.0	---	---	---	---
221D:									
Hillon----------	C	None	---	---	>6.0	---	---	---	---
Kevin-----------	C	None	---	---	>6.0	---	---	---	---
221E:									
Hillon----------	C	None	---	---	>6.0	---	---	---	---
Kevin-----------	C	None	---	---	>6.0	---	---	---	---
224D:									
Hillon----------	C	None	---	---	>6.0	---	---	---	---
Joplin----------	C	None	---	---	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
241B:									
Benz	C	None	---	---	>6.0	---	---	---	---
Vanda	D	None	---	---	>6.0	---	---	---	---
250E:									
Bascovy	D	None	---	---	>6.0	---	---	---	---
Neldore	D	None	---	---	>6.0	---	---	---	---
Weingart, thin	D	None	---	---	>6.0	---	---	---	---
251C:									
Bascovy	D	None	---	---	>6.0	---	---	---	---
Neldore	D	None	---	---	>6.0	---	---	---	---
270E:									
Beaverell	B	None	---	---	>6.0	---	---	---	---
Tinsley	A	None	---	---	>6.0	---	---	---	---
271D:									
Beaverell	B	None	---	---	>6.0	---	---	---	---
Evanston	B	None	---	---	>6.0	---	---	---	---
301C:									
Marvan, saline	D	None	---	---	>6.0	---	---	---	---
Marvan	D	None	---	---	>6.0	---	---	---	---
302B:									
Marvan, saline	D	None	---	---	>6.0	---	---	---	---
Vanda	D	None	---	---	>6.0	---	---	---	---
311B:									
Ferd	C	None	---	---	>6.0	---	---	---	---
Gerdrum	D	None	---	---	>6.0	---	---	---	---
312B:									
Ferd	C	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
320A:									
Kobase	C	None	---	---	3.0-5.0	Apparent	Apr-Sep	---	---
322C:									
Kobase	C	None	---	---	>6.0	---	---	---	---
Megonot	C	None	---	---	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
323B:									
Kobase	C	None	---	---	>6.0	---	---	---	---
Marvan	D	None	---	---	>6.0	---	---	---	---
Weingart, thin	D	None	---	---	>6.0	---	---	---	---
331B:									
Phillips	C	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
331C:									
Phillips	C	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
332B:									
Phillips	C	None	---	---	>6.0	---	---	---	---
Elloam	D	None	---	---	>6.0	---	---	---	---
333C:									
Phillips	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
334C:									
Phillips	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
351C:									
Fortbenton	C	None	---	---	>6.0	---	---	---	---
373C:									
Evanston	B	None	---	---	>6.0	---	---	---	---
Chinook	B	None	---	---	>6.0	---	---	---	---
381B:									
Ethridge	C	None	---	---	>6.0	---	---	---	---
Gerdrum	D	None	---	---	>6.0	---	---	---	---
383C:									
Ethridge	C	None	---	---	>6.0	---	---	---	---
Beaverell	B	None	---	---	>6.0	---	---	---	---
391B:									
Creed	C	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
392B:									
Creed	C	None	---	---	>6.0	---	---	---	---
Gerdrum	D	None	---	---	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				Maximum ponding depth
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	
					Ft				*Ft*
402B:									
Gerdrum	D	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
421C:									
Joplin	C	None	---	---	>6.0	---	---	---	---
Hillon	C	None	---	---	>6.0	---	---	---	---
424D:									
Joplin	C	None	---	---	>6.0	---	---	---	---
Telstad	C	None	---	---	>6.0	---	---	---	---
426C:									
Joplin	C	None	---	---	>6.0	---	---	---	---
Hillon	C	None	---	---	>6.0	---	---	---	---
442C:									
Kevin	C	None	---	---	>6.0	---	---	---	---
Hillon	C	None	---	---	>6.0	---	---	---	---
444C:									
Kevin	C	None	---	---	>6.0	---	---	---	---
Sunburst	C	None	---	---	>6.0	---	---	---	---
446D:									
Kevin	C	None	---	---	>6.0	---	---	---	---
Sunburst	C	None	---	---	>6.0	---	---	---	---
481A:									
Bigsag	D	Rare	Brief	Jan-Jul	1.0-2.0	Apparent	Mar-Nov	---	---
502C:									
Telstad	C	None	---	---	>6.0	---	---	---	---
Elloam	D	None	---	---	>6.0	---	---	---	---
503C:									
Telstad	C	None	---	---	>6.0	---	---	---	---
Joplin	C	None	---	---	>6.0	---	---	---	---
504C:									
Telstad	C	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
505C:									
Telstad	C	None	---	---	>6.0	---	---	---	---
Hillon	C	None	---	---	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
511B:									
Martinsdale	B	None	---	---	>6.0	---	---	---	---
Judith	B	None	---	---	>6.0	---	---	---	---
521B:									
Elloam	D	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
561B:									
Scobey	C	None	---	---	>6.0	---	---	---	---
Phillips	C	None	---	---	>6.0	---	---	---	---
562C:									
Scobey	C	None	---	---	>6.0	---	---	---	---
Elloam	D	None	---	---	>6.0	---	---	---	---
563C:									
Scobey	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
564C:									
Scobey	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
Elloam	D	None	---	---	>6.0	---	---	---	---
566C:									
Scobey	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
567C:									
Scobey	C	None	---	---	>6.0	---	---	---	---
Elloam	D	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
600:									
Pits, gravel.									
601A:									
Havre	B	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
Harlake	C	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
Glendive	B	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
603A:									
Havre	B	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
604A:									
Bullhook	C	Rare	Brief	Jan-Jul	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
610:									
Pits, bentonite.									
650C:									
Yetull----------	A	None	---	---	>6.0	---	---	---	---
650D:									
Yetull----------	A	None	---	---	>6.0	---	---	---	---
731C:									
Judith----------	B	None	---	---	>6.0	---	---	---	---
Windham---------	B	None	---	---	>6.0	---	---	---	---
791E:									
Yamacall, calcareous-----	B	None	---	---	>6.0	---	---	---	---
Yamacall--------	B	None	---	---	>6.0	---	---	---	---
792C:									
Yamacall, calcareous-----	B	None	---	---	>6.0	---	---	---	---
Yamacall--------	B	None	---	---	>6.0	---	---	---	---
811A:									
Glendive--------	B	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
Havre-----------	B	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
821D:									
Savage----------	C	None	---	---	>6.0	---	---	---	---
Farnuf----------	B	None	---	---	>6.0	---	---	---	---
860C:									
Weingart--------	D	None	---	---	>6.0	---	---	---	---
Weingart, thin--	D	None	---	---	>6.0	---	---	---	---
871B:									
Tamaneen--------	B	None	---	---	>6.0	---	---	---	---
Danvers---------	C	None	---	---	>6.0	---	---	---	---
901A:									
Lallie----------	D	Rare	Brief	Jan-Jul	2.0-1.0	Apparent	Apr-Jun	Long	1.0
902A:									
Lostriver-------	C	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
Bullhook--------	C	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
903A:									
Harlake---------	C	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
Lostriver-------	C	Rare	Brief	Jan-Jul	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
905A:									
Harlake	C	Rare	Brief	Jan-Jul	3.0-5.0	Apparent	Apr-Sep	---	---
Havre	C	Rare	Brief	Jan-Jul	3.0-5.0	Apparent	Apr-Sep	---	---
921D:									
Sunburst	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
923C:									
Sunburst	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
923F:									
Sunburst	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
924E:									
Sunburst	C	None	---	---	>6.0	---	---	---	---
Bascovy	D	None	---	---	>6.0	---	---	---	---
Neldore	D	None	---	---	>6.0	---	---	---	---
925C:									
Sunburst	C	None	---	---	>6.0	---	---	---	---
Bascovy	D	None	---	---	>6.0	---	---	---	---
Weingart, thin	D	None	---	---	>6.0	---	---	---	---
926F:									
Sunburst	C	None	---	---	>6.0	---	---	---	---
Neldore	D	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
930A:									
Wheatbelt	D	None	---	---	1.0-2.0	Apparent	Apr-Sep	Long	0.5
971F:									
Neldore	D	None	---	---	>6.0	---	---	---	---
Cabbart	D	None	---	---	>6.0	---	---	---	---
Tinsley	A	None	---	---	>6.0	---	---	---	---
973E:									
Neldore, cool	D	None	---	---	>6.0	---	---	---	---
Bascovy	D	None	---	---	>6.0	---	---	---	---
974F:									
Pinebreaks	D	None	---	---	>6.0	---	---	---	---
Neldore	D	None	---	---	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
1021E:									
Cabbart	D	None	---	---	>6.0	---	---	---	---
Twilight	B	None	---	---	>6.0	---	---	---	---
Yawdim	D	None	---	---	>6.0	---	---	---	---
1022F:									
Hillon	C	None	---	---	>6.0	---	---	---	---
Cabbart	D	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
1030D:									
Marvan	D	None	---	---	>6.0	---	---	---	---
Gerdrum	D	None	---	---	>6.0	---	---	---	---
1037D:									
Evanston	B	None	---	---	>6.0	---	---	---	---
Yamacall	B	None	---	---	>6.0	---	---	---	---
1052B:									
Elloam	D	None	---	---	>6.0	---	---	---	---
Thoeny	D	None	---	---	>6.0	---	---	---	---
1059E:									
Weingart	D	None	---	---	>6.0	---	---	---	---
Vaeda	D	None	---	---	>6.0	---	---	---	---
Bascovy	D	None	---	---	>6.0	---	---	---	---
1066D:									
Twilight	B	None	---	---	>6.0	---	---	---	---
Cabbart	D	None	---	---	>6.0	---	---	---	---
Marmarth	C	None	---	---	>6.0	---	---	---	---
1090B:									
Harlake	C	Rare	Brief	Jan-Jul	>6.0	---	---	---	---
Marvan	D	None	---	---	>6.0	---	---	---	---
1221F:									
Hillon	C	None	---	---	>6.0	---	---	---	---
Kevin	C	None	---	---	>6.0	---	---	---	---
1251E:									
Neldore	D	None	---	---	>6.0	---	---	---	---
Bascovy	D	None	---	---	>6.0	---	---	---	---
1261B:									
Absher	D	None	---	---	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
1261B:(cont.)									
Nobe	D	None	---	---	>6.0	---	---	---	---
1262A:									
Toston	C	Rare	Brief	Jan-Jul	2.0-3.5	Apparent	Apr-Aug	---	---
Nobe	D	Rare	Brief	Jan-Jul	4.0-6.0	Apparent	Apr-Aug	---	---
1332C:									
Phillips	C	None	---	---	>6.0	---	---	---	---
Elloam	D	None	---	---	>6.0	---	---	---	---
Thoeny	D	None	---	---	>6.0	---	---	---	---
1333C:									
Kevin	C	None	---	---	>6.0	---	---	---	---
Phillips	C	None	---	---	>6.0	---	---	---	---
Elloam	D	None	---	---	>6.0	---	---	---	---
1373C:									
Evanston	B	None	---	---	>6.0	---	---	---	---
Chinook	B	None	---	---	>6.0	---	---	---	---
Marmarth	C	None	---	---	>6.0	---	---	---	---
1392B:									
Creed	C	None	---	---	>6.0	---	---	---	---
Gerdrum	D	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
1400F:									
Rock outcrop.									
Arsite	D	None	---	---	>6.0	---	---	---	---
1441D:									
Kevin	C	None	---	---	>6.0	---	---	---	---
Scobey	C	None	---	---	>6.0	---	---	---	---
Phillips	C	None	---	---	>6.0	---	---	---	---
1443E:									
Kevin	C	None	---	---	>6.0	---	---	---	---
Scobey	C	None	---	---	>6.0	---	---	---	---
Nishon	D	None	---	---	0.0-2.0	Apparent	Apr-Jul	Long	1.0
1503D:									
Telstad	C	None	---	---	>6.0	---	---	---	---
Joplin	C	None	---	---	>6.0	---	---	---	---

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
1523C:									
Elloam	D	None	---	---	>6.0	---	---	---	---
Phillips	C	None	---	---	>6.0	---	---	---	---
Absher	D	None	---	---	>6.0	---	---	---	---
1850F:									
Cabbart	D	None	---	---	>6.0	---	---	---	---
Twilight	B	None	---	---	>6.0	---	---	---	---
Delpoint	C	None	---	---	>6.0	---	---	---	---
1920F:									
Sunburst	C	None	---	---	>6.0	---	---	---	---
Neldore	D	None	---	---	>6.0	---	---	---	---
1970F:									
Neldore	D	None	---	---	>6.0	---	---	---	---
Bascovy	D	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
1971F:									
Yawdim	D	None	---	---	>6.0	---	---	---	---
Cabbart	D	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
1972F:									
Volborg	D	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
1973F:									
Neldore, cool	D	None	---	---	>6.0	---	---	---	---
Neldore	D	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
1976F:									
Neldore	D	None	---	---	>6.0	---	---	---	---
Pinebreaks	D	None	---	---	>6.0	---	---	---	---
Bascovy	D	None	---	---	>6.0	---	---	---	---
1977F:									
Volborg	D	None	---	---	>6.0	---	---	---	---
Pinebreaks	D	None	---	---	>6.0	---	---	---	---
Rock outcrop.									

Water Features--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				*Ft*
2972F:									
Volborg---------	D	None	---	---	>6.0	---	---	---	---
Neldore---------	D	None	---	---	>6.0	---	---	---	---
Rock outcrop.									
W:									
Water.									

Soil Features

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
10C:					
Barkof----------	20-40	Soft	Moderate	High	Moderate
11B:					
Degrand---------	>60	---	Moderate	High	Low
13B:					
Beaverton-------	>60	---	Moderate	High	Low
25C:					
Bascovy---------	20-40	Soft	Low	High	High
28A:					
Nishon----------	>60	---	Moderate	High	Low
29A:					
McKenzie--------	>60	---	Low	High	Low
30A:					
Marvan----------	>60	---	Low	High	Moderate
31B:					
Ferd------------	>60	---	Low	High	Low
32B:					
Kobase----------	>60	---	Low	High	Low
33B:					
Phillips--------	>60	---	Low	High	Low
35C:					
Assinniboine----	>60	---	Moderate	High	Low
36C:					
Chinook---------	>60	---	Moderate	High	Low
37B:					
Evanston--------	>60	---	Moderate	High	Low
37C:					
Evanston--------	>60	---	Moderate	High	Low
38B:					
Ethridge--------	>60	---	Low	High	Low
38C:					
Ethridge--------	>60	---	Low	High	Low
41A:					
Vaeda-----------	>60	---	Low	High	High
43A:					
Pendroy---------	>60	---	Low	High	Moderate
48A:					
Vanda-----------	>60	---	Low	High	Moderate
49A:					
Lardell---------	>60	---	High	High	High

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
50B:					
Telstad	>60	---	Low	High	Low
52B:					
Elloam	>60	---	Low	High	High
56B:					
Scobey	>60	---	Low	High	Low
59B:					
Weingart	20-40	Soft	Low	High	Moderate
60A:					
Havre	>60	---	Moderate	High	Low
75C:					
Farnuf	>60	---	Moderate	High	Low
79C:					
Yamacall	>60	---	Moderate	High	Low
81A:					
Glendive	>60	---	Moderate	High	Low
82B:					
Savage	>60	---	Low	High	Low
82C:					
Savage	>60	---	Low	High	Low
84F:					
Macmeal, warm	>60	---	Moderate	High	Low
Macmeal	>60	---	Moderate	High	Low
90A:					
Harlake	>60	---	Low	High	Low
93A:					
Bowdoin	>60	---	Moderate	High	Moderate
94C:					
Busby	>60	---	Moderate	High	Low
94D:					
Busby	>60	---	Moderate	High	Low
96D:					
Megonot	20-40	Soft	Low	High	Low
Kobase	>60	---	Low	High	Low
97D:					
Neldore	10-20	Soft	Low	High	Moderate
Bascovy	20-40	Soft	Low	High	High
100A:					
Hanly	>60	---	Low	Moderate	Low

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
101E:					
Barkof	20-40	Soft	Moderate	High	Moderate
Windham	>60	---	Moderate	High	Low
110C:					
Attewan	>60	---	Moderate	High	Low
Beaverell	>60	---	Moderate	High	Low
115F:					
Silverchief	>60	---	Moderate	High	Low
Whitecow, warm	>60	---	Moderate	High	Low
Macmeal	>60	---	Moderate	High	Low
120F:					
Mocmont, cool	>60	---	Moderate	Moderate	Moderate
Mocmont	>60	---	Moderate	Moderate	Moderate
121F:					
Mocmont	>60	---	Moderate	Moderate	Moderate
Mocmont, cool	>60	---	Moderate	Moderate	Moderate
Tolex	10-20	Hard	Moderate	Moderate	Moderate
122F:					
Mocmont, cool	>60	---	Moderate	Moderate	Moderate
Landusky	>60	---	Low	Moderate	Low
130F:					
Rubble land.					
Mocmont, cool	>60	---	Moderate	Moderate	Moderate
Rock outcrop.					
139F:					
Whitecow, warm	>60	---	Moderate	High	Low
Warneke	10-20	Hard	Moderate	Moderate	Low
140F:					
Whitecow	>60	---	Moderate	High	Low
Whitecow, warm	>60	---	Moderate	High	Low
151F:					
Warneke	10-20	Hard	Moderate	Moderate	Low
Whitecow, warm	>60	---	Moderate	High	Low
Rock outcrop.					

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
160D:					
Whitecow, warm--	>60	---	Moderate	High	Low
160E:					
Whitecow, warm--	>60	---	Moderate	High	Low
170A:					
Dimmick---	>60	---	Moderate	High	Low
180B:					
Binna---	>60	---	Moderate	High	Low
Saypo---	>60	---	High	High	Low
190B:					
Nesda---	>60	---	Low	High	Low
Nesda, cool---	>60	---	Low	High	Low
200F:					
Mined land.					
201D:					
Cabba---	10-20	Soft	Moderate	High	Low
Windham---	>60	---	Moderate	High	Low
211B:					
Thoeny---	>60	---	Low	High	Moderate
Absher---	>60	---	Low	High	Moderate
212B:					
Thoeny---	>60	---	Low	High	Moderate
Elloam---	>60	---	Low	High	High
220E:					
Hillon---	>60	---	Moderate	High	Low
Joplin---	>60	---	Moderate	High	Low
221D:					
Hillon---	>60	---	Moderate	High	Low
Kevin---	>60	---	Moderate	High	Low
221E:					
Hillon---	>60	---	Moderate	High	Low
Kevin---	>60	---	Moderate	High	Low
224D:					
Hillon---	>60	---	Moderate	High	Low
Joplin---	>60	---	Moderate	High	Low
241B:					
Benz---	>60	---	Moderate	High	Low
Vanda---	>60	---	Low	High	Moderate

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
250E:					
Bascovy	20-40	Soft	Low	High	High
Neldore	10-20	Soft	Low	High	Moderate
Weingart, thin	20-40	Soft	Low	High	Moderate
251C:					
Bascovy	20-40	Soft	Low	High	High
Neldore	10-20	Soft	Low	High	Moderate
270E:					
Beaverell	>60	---	Moderate	High	Low
Tinsley	>60	---	Low	High	Low
271D:					
Beaverell	>60	---	Moderate	High	Low
Evanston	>60	---	Moderate	High	Low
301C:					
Marvan, saline	>60	---	Low	High	Moderate
Marvan	>60	---	Low	High	Moderate
302B:					
Marvan, saline	>60	---	Low	High	Moderate
Vanda	>60	---	Low	High	Moderate
311B:					
Ferd	>60	---	Low	High	Low
Gerdrum	>60	---	Low	High	Moderate
312B:					
Ferd	>60	---	Low	High	Low
Absher	>60	---	Low	High	Moderate
320A:					
Kobase	>60	---	Low	High	Low
322C:					
Kobase	>60	---	Low	High	Low
Megonot	20-40	Soft	Low	High	Low
323B:					
Kobase	>60	---	Low	High	Low
Marvan	>60	---	Low	High	Moderate
Weingart, thin	20-40	Soft	Low	High	Moderate
331B:					
Phillips	>60	---	Low	High	Low
Absher	>60	---	Low	High	Moderate

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
331C:					
Phillips	>60	---	Low	High	Low
Absher	>60	---	Low	High	Moderate
332B:					
Phillips	>60	---	Low	High	Low
Elloam	>60	---	Low	High	High
333C:					
Phillips	>60	---	Low	High	Low
Kevin	>60	---	Moderate	High	Low
334C:					
Phillips	>60	---	Low	High	Low
Kevin	>60	---	Moderate	High	Low
351C:					
Fortbenton	>60	---	Moderate	High	Low
373C:					
Evanston	>60	---	Moderate	High	Low
Chinook	>60	---	Moderate	High	Low
381B:					
Ethridge	>60	---	Low	High	Low
Gerdrum	>60	---	Low	High	Moderate
383C:					
Ethridge	>60	---	Low	High	Low
Beaverell	>60	---	Moderate	High	Low
391B:					
Creed	>60	---	Low	High	Moderate
Absher	>60	---	Low	High	Moderate
392B:					
Creed	>60	---	Low	High	Moderate
Gerdrum	>60	---	Low	High	Moderate
402B:					
Gerdrum	>60	---	Low	High	Moderate
Absher	>60	---	Low	High	Moderate
421C:					
Joplin	>60	---	Moderate	High	Low
Hillon	>60	---	Moderate	High	Low

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
424D:					
Joplin	>60	---	Moderate	High	Low
Telstad	>60	---	Low	High	Low
426C:					
Joplin	>60	---	Moderate	High	Low
Hillon	>60	---	Moderate	High	Low
442C:					
Kevin	>60	---	Moderate	High	Low
Hillon	>60	---	Moderate	High	Low
444C:					
Kevin	>60	---	Moderate	High	Low
Sunburst	>60	---	Low	High	Low
446D:					
Kevin	>60	---	Moderate	High	Low
Sunburst	>60	---	Low	High	Low
481A:					
Bigsag	>60	---	Moderate	High	High
502C:					
Telstad	>60	---	Low	High	Low
Elloam	>60	---	Low	High	High
503C:					
Telstad	>60	---	Low	High	Low
Joplin	>60	---	Moderate	High	Low
504C:					
Telstad	>60	---	Low	High	Low
Absher	>60	---	Low	High	Moderate
505C:					
Telstad	>60	---	Low	High	Low
Hillon	>60	---	Moderate	High	Low
511B:					
Martinsdale	>60	---	Moderate	High	Moderate
Judith	>60	---	Moderate	High	Low
521B:					
Elloam	>60	---	Low	High	High
Absher	>60	---	Low	High	Moderate

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
561B:					
Scobey	>60	---	Low	High	Low
Phillips	>60	---	Low	High	Low
562C:					
Scobey	>60	---	Low	High	Low
Elloam	>60	---	Low	High	High
563C:					
Scobey	>60	---	Low	High	Low
Kevin	>60	---	Moderate	High	Low
564C:					
Scobey	>60	---	Low	High	Low
Kevin	>60	---	Moderate	High	Low
Elloam	>60	---	Low	High	High
566C:					
Scobey	>60	---	Low	High	Low
Kevin	>60	---	Moderate	High	Low
567C:					
Scobey	>60	---	Low	High	Low
Elloam	>60	---	Low	High	High
Absher	>60	---	Low	High	Moderate
600:					
Pits, gravel.					
601A:					
Havre	>60	---	Moderate	High	Low
Harlake	>60	---	Low	High	Low
Glendive	>60	---	Moderate	High	Low
603A:					
Havre	>60	---	Low	High	Low
604A:					
Bullhook	>60	---	Moderate	High	Moderate
610:					
Pits, bentonite.					
650C:					
Yetull	>60	---	Low	High	Low
650D:					
Yetull	>60	---	Low	High	Low

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
731C:					
Judith----------	>60	---	Moderate	High	Low
Windham---------	>60	---	Moderate	High	Low
791E:					
Yamacall, calcareous-----	>60	---	Moderate	High	Low
Yamacall--------	>60	---	Moderate	High	Low
792C:					
Yamacall, calcareous-----	>60	---	Moderate	High	Low
Yamacall--------	>60	---	Moderate	High	Low
811A:					
Glendive--------	>60	---	Moderate	High	Low
Havre-----------	>60	---	Moderate	High	Low
821D:					
Savage----------	>60	---	Low	High	Low
Farnuf----------	>60	---	Moderate	High	Low
860C:					
Weingart--------	20-40	Soft	Low	High	Moderate
Weingart, thin--	20-40	Soft	Low	High	Moderate
871B:					
Tamaneen--------	>60	---	Moderate	High	Low
Danvers---------	>60	---	Low	High	Low
901A:					
Lallie----------	>60	---	High	High	High
902A:					
Lostriver-------	>60	---	Low	High	Moderate
Bullhook--------	>60	---	Moderate	High	Moderate
903A:					
Harlake---------	>60	---	Low	High	Low
Lostriver-------	>60	---	Low	High	Moderate
905A:					
Harlake---------	>60	---	Low	High	Low
Havre-----------	>60	---	Moderate	High	Low
921D:					
Sunburst--------	>60	---	Low	High	Low
Kevin-----------	>60	---	Moderate	High	Low

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
923C:					
Sunburst--------	>60	---	Low	High	Low
Kevin----------	>60	---	Moderate	High	Low
923F:					
Sunburst--------	>60	---	Low	High	Low
Kevin----------	>60	---	Moderate	High	Low
924E:					
Sunburst--------	>60	---	Low	High	Low
Bascovy---------	20-40	Soft	Low	High	High
Neldore---------	10-20	Soft	Low	High	Moderate
925C:					
Sunburst--------	>60	---	Low	High	Low
Bascovy---------	20-40	Soft	Low	High	High
Weingart, thin--	20-40	Soft	Low	High	Moderate
926F:					
Sunburst--------	>60	---	Low	High	Low
Neldore---------	10-20	Soft	Low	High	Moderate
Rock outcrop.					
930A:					
Wheatbelt-------	>60	---	Low	High	Low
971F:					
Neldore---------	10-20	Soft	Low	High	Moderate
Cabbart---------	10-20	Soft	Moderate	High	Low
Tinsley---------	>60	---	Low	High	Low
973E:					
Neldore, cool---	10-20	Soft	Low	High	---
Bascovy---------	20-40	Soft	Low	High	High
974F:					
Pinebreaks------	10-20	Soft	Low	High	High
Neldore---------	10-20	Soft	Low	High	---
1021E:					
Cabbart---------	10-20	Soft	Moderate	High	Low
Twilight--------	20-40	Soft	Moderate	High	Low
Yawdim----------	10-20	Soft	Low	High	Low

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
1022F:					
Hillon	>60	---	Moderate	High	Low
Cabbart	10-20	Soft	Moderate	High	Low
Rock outcrop.					
1030D:					
Marvan	>60	---	Low	High	Moderate
Gerdrum	>60	---	Low	High	Moderate
1037D:					
Evanston	>60	---	Moderate	High	Low
Yamacall	>60	---	Moderate	High	Low
1052B:					
Elloam	>60	---	Low	High	High
Thoeny	>60	---	Low	High	Moderate
1059E:					
Weingart	20-40	Soft	Low	High	Moderate
Vaeda	>60	---	Low	High	High
Bascovy	20-40	Soft	Low	High	High
1066D:					
Twilight	20-40	Soft	Moderate	High	Low
Cabbart	10-20	Soft	Moderate	High	Low
Marmarth	20-40	Soft	Moderate	High	Low
1090B:					
Harlake	>60	---	Low	High	Low
Marvan	>60	---	Low	High	Moderate
1221F:					
Hillon	>60	---	Moderate	High	Low
Kevin	>60	---	Moderate	High	Low
1251E:					
Neldore	10-20	Soft	Low	High	Moderate
Bascovy	20-40	Soft	Low	High	High
1261B:					
Absher	>60	---	Low	High	Moderate
Nobe	>60	---	Low	High	High
1262A:					
Toston	>60	---	High	High	High
Nobe	>60	---	Low	High	High

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
1332C:					
Phillips	>60	---	Low	High	Low
Elloam	>60	---	Low	High	High
Thoeny	>60	---	Low	High	Moderate
1333C:					
Kevin	>60	---	Moderate	High	Low
Phillips	>60	---	Low	High	Low
Elloam	>60	---	Low	High	High
1373C:					
Evanston	>60	---	Moderate	High	Low
Chinook	>60	---	Moderate	High	Low
Marmarth	20-40	Soft	Moderate	High	Low
1392B:					
Creed	>60	---	Low	High	Moderate
Gerdrum	>60	---	Low	High	Moderate
Absher	>60	---	Low	High	Moderate
1400F:					
Rock outcrop.					
Arsite	10-20	Soft	Low	High	High
1441D:					
Kevin	>60	---	Moderate	High	Low
Scobey	>60	---	Low	High	Low
Phillips	>60	---	Low	High	Low
1443E:					
Kevin	>60	---	Moderate	High	Low
Scobey	>60	---	Low	High	Low
Nishon	>60	---	Moderate	High	Low
1503D:					
Telstad	>60	---	Low	High	Low
Joplin	>60	---	Moderate	High	Low
1523C:					
Elloam	>60	---	Low	High	High
Phillips	>60	---	Low	High	Low
Absher	>60	---	Low	High	Moderate

Soil Features--Continued

Map symbol and soil name	Bedrock		Potential frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
1850F:					
Cabbart	10-20	Soft	Moderate	High	Low
Twilight	20-40	Soft	Moderate	High	Low
Delpoint	20-40	Soft	Moderate	High	Low
1920F:					
Sunburst	>60	---	Low	High	Low
Neldore	10-20	Soft	Low	High	Moderate
1970F:					
Neldore	10-20	Soft	Low	High	Moderate
Bascovy	20-40	Soft	Low	High	High
Rock outcrop.					
1971F:					
Yawdim	10-20	Soft	Low	High	Low
Cabbart	10-20	Soft	Moderate	High	Low
Rock outcrop.					
1972F:					
Volborg	10-20	Soft	Low	High	High
Rock outcrop.					
1973F:					
Neldore, cool	10-20	Soft	Low	High	---
Neldore	10-20	Soft	Low	High	---
Rock outcrop.					
1976F:					
Neldore	10-20	Soft	Low	High	---
Pinebreaks	10-20	Soft	Low	High	High
Bascovy	20-40	Soft	Low	High	High
1977F:					
Volborg	10-20	Soft	Low	High	High
Pinebreaks	10-20	Soft	Low	High	High
Rock outcrop.					
2972F:					
Volborg	10-20	Soft	Low	High	High
Neldore	10-20	Soft	Low	High	---
Rock outcrop.					
W:					
Water.					

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Glossary

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. A body of alluvium, with overflow of water and debris flow deposits, whose surface forms a segment of a cone that radiates downslope from the point where the stream emerges from a narrow valley onto a less sloping surface. Source uplands range in relief and areal extent from mountains to gullied terrains on hill slopes.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal-unit-month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillite. Weakly metamorphosed mudstone or shale.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3.75
Low	3.75 to 5.0
Moderate	5.0 to 7.5
High	more than 7.5

Avalanche chute. The track or path formed by an avalanche.

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hill slopes. Back slopes in profile are commonly steep and linear and descend to a foot slope. In terms of gradational process, back slopes are erosional forms produced mainly by mass wasting and running water.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-floored plain. An extensive nearly level to gently rolling or moderately sloping area that is underlain by hard bedrock and has a slope of 0 to 8 percent.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Board foot. A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board 1 foot wide, 1 foot long, and 1 inch thick before finishing.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. The steep or very steep broken land at the border of an upland summit that is dissected by ravines.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to reduce or eliminate competition from woody vegetation and thus to allow understory grasses and forbs to recover or to make conditions favorable for reseeding. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, a felled tree generally is reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche. A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds just beneath the solum, or it is exposed at the surface by erosion.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

Channeled. Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation by use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

Cirque. A semicircular, concave, bowl-like area that has steep faces primarily resulting from erosive activity of a mountain glacier.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clayey soil. Silty clay, sandy clay, or clay.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or

root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Clearcut. A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from the adjacent stands.

Climax plant community. The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent cobbles, and extremely cobbly soil material is more than 60 percent cobbles.

Codominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Commercial forest. Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conglomerate. A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. Any tillage and planting system in which a cover of crop residue is maintained on at least 30 percent of the soil surface after planting in order to reduce the hazard of water erosion; in areas where soil blowing is the primary concern, a system that maintains a cover of at least 1,000 pounds of flat residue of small grain or the equivalent during the critical erosion period.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—Readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.
Cemented.—Hard; little affected by moistening.

Consolidated sandstone. Sandstone that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry, are not easily crushed, and cannot be textured by the usual field method.

Consolidated shale. Shale that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry and are not easily crushed.

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called culmination of mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming with the dip of underlying bedded rock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit the use of a full stripcropping pattern.

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:
Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.
Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless a drainage system is installed. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless a drainage system is installed. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops (except rice) unless a drainage system is installed.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Duff. A term used to identify a generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune. A mound, ridge, or hill of loose, windblown granular material (generally sand), either bare or covered with vegetation.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, for example, fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. The term is more often applied to cliffs resulting from differential erosion.

Esker. A long, narrow, sinuous, steep-sided ridge composed of irregularly stratified sand and gravel that were deposited by a subsurface stream flowing between ice walls or through ice tunnels of a retreating glacier and that were left behind when the ice melted. Eskers range from less than a mile to more than 100 miles in length and from 10 to 100 feet in height.

Even aged. Refers to a stand of trees in which only small differences in age occur between individual trees. A range of 20 years is allowed.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Excess sulfur (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. A firebreak also serves as a line from which to work and to facilitate the movement of fire fighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of the stream.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothills. A region of relatively low, rounded hills at the base of a mountain range.

Footslope. The geomorphic component that forms the inner, gently inclined surface at the base of a hill slope. The surface profile is dominantly concave. In terms of gradational processes, a foot slope is a transition zone between an upslope site of erosion (backslope) and a downslope site of deposition (toeslope).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Giant ripple mark. The undulating surface sculpture produced in noncoherent granular materials by currents of water and by the agitation of water in wave action during the draining of large glacial lakes, such as Glacial Lake Missoula.

Glacial drift (geology). Pulverized and other rock material transported by glacial ice and then

deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciated uplands. Land areas that were previously covered by continental or alpine glaciers and that are at a higher elevation than the flood plain.

Glaciofluvial deposits (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage. A gullied map unit is one that has numerous gullies.

Gypsum. A mineral consisting of hydrous calcium sulfate.

Habitat type. An aggregation of all land areas capable of producing similar climax plant communities.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head out. To form a flower head.

Heavy metal. Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 8 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus,

or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the number 2 precedes the letter C.

Cr horizon.—Sedimentary beds of consolidated sandstone and semiconsolidated and consolidated shale. Generally, roots can penetrate this horizon only along fracture planes.

R layer.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and are less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals

from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. A moundlike hill of glacial drift, composed chiefly of stratified sand and gravel.

Kame terrace. A terracelike ridge consisting of stratified sand and gravel that were deposited by a meltwater stream flowing between a melting glacier and a higher valley wall or lateral moraine and that remained after the disappearance of the ice. It is commonly pitted with kettles and has an irregular ice-contact slope.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Lateral moraine. A ridgelike moraine carried on and deposited at the side margin of a valley glacier. It is composed chiefly of rock fragments derived from the valley walls by glacial abrasion and plucking or by mass wasting.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by the wind.

Low-residue crops. Crops such as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Microhigh. An area that is 2 to 12 inches higher than the adjacent microlow.

Microlow. An area that is 2 to 12 inches lower than the adjacent microhigh.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Miscellaneous water. A sewage lagoon, an industrial waste pit, a fish hatchery, or a similar water area.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Moraine. An accumulation of glacial drift in a topographic landform of its own, resulting chiefly from the direct action of glacial ice. Some types are lateral, recessional, and terminal.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of limited summit area and generally having steep sides (slopes greater than 25 percent) and considerable bare-rock surface. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are primarily formed by deep-seated earth movements or volcanic action and secondarily by differential erosion.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of *10YR 6/4* is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Observed rooting depth. Depth to which roots have been observed to penetrate.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Outwash plain. An extensive area of glaciofluvial material that was deposited by meltwater streams.

Overstory. The trees in a forest that form the upper crown cover.

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil, adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. The application of fire to land under such conditions of weather, soil moisture, and time of day as presumably will result in the intensity of heat and spread required to accomplish specific forest management, wildlife, grazing, or fire hazard reduction purposes.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Quartzite, metamorphic. Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

Quartzite, sedimentary. Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Recessional moraine. A moraine formed during a temporary but significant halt in the retreat of a glacier.

Red beds. Sedimentary strata mainly red in color and composed largely of sandstone and shale.

Regeneration. The new growth of a natural plant community, developing from seed.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Riser. The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or base level.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas that have more than 90 percent of the surface covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Salinity. The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

Nonsaline	0 to 4
Slightly saline	4 to 8
Moderately saline	8 to 16
Strongly saline	more than 16

Salty water (in tables). Water that is too salty for consumption by livestock.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Sawlogs. Logs of suitable size and quality for the production of lumber.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Scribner's log rule. A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

Sedimentary plain. An extensive nearly level to gently rolling or moderately sloping area that is underlain by sedimentary bedrock and that has a slope of 0 to 8 percent.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sedimentary uplands. Land areas of bedrock formed from water- or wind-deposited sediments. They are higher on the landscape than the flood plain.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Semiconsolidated sedimentary beds. Soft geologic sediments that disperse when fragments are placed in water. The fragments are hard or very hard when dry. Determining the texture by the usual field method is difficult.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shelterwood system. A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant or dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slash. The branches, bark, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

Slickens. Accumulations of fine textured material, such as material separated in placer-mine and ore-mill operations. Slickens from ore mills commonly consist of freshly ground rock that has undergone chemical treatment during the milling process.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling

clayey soils, where there is marked change in moisture content.

Slickspot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is loamy or clayey, is slippery when wet, and is low in productivity.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 4 percent
Moderately sloping	4 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 45 percent
Very steep	more than 45 percent

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na* to Ca** + Mg**. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Species. A single, distinct kind of plant or animal having certain distinguishing characteristics.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain,

streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter or loosen a layer that is restrictive to roots.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Tailwater. The water directly downstream of a structure.

Talus. Rock fragments of any size or shape, commonly coarse and angular, derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose, broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances. It commonly is a massive arcuate ridge or complex of ridges underlain by till and other types of drift.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). A layer of otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive nearly level to gently rolling or moderately sloping area that is underlain by or consists of till and that has a slope of 0 to 8 percent.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill. Toeslopes are commonly gentle and linear in profile.

Too arid (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Toxicity (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Trafficability. The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

Tread. The relatively flat terrace surface that was cut or built by stream or wave action.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Understory. Any plants in a forest community that grow to a height of less than 5 feet.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley. An elongated depressional area primarily developed by stream action.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very deep soil. A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Very shallow soil. A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Water-spreading. Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The action of uprooting and tipping over trees by the wind.