

United States  
Department of  
Agriculture

Soil  
Conservation  
Service



# Hydrology Training Series

Module 104 - Runoff Curve  
Number Computations

Study Guide

**Engineering  
Hydrology Training Series  
Module 104**

# **Runoff Curve Number Computations**

**National Employee Development Staff  
Soil Conservation Service  
United States Department of Agriculture  
September 1989**



## **Preface**

This module consists of a study guide that contains a step by step process for calculating average runoff curve numbers from given field data.

Proceed through this module at your own pace. Be sure you completely understand each section before moving on. If you have questions or need help, please request assistance from your supervisor. If your supervisor cannot clear up your problems, he/she will contact the state-appointed resource person. The resource person is familiar with the material and should be able to answer any questions you may have.

Be sure to write out your answers to the included activities. This will help to reinforce your learning. After completing each activity, compare your answers with the included solution.

## **Acknowledgement**

The design and development of this training module is the result of a concentrated effort by practicing engineers in the Soil Conservation Service. The contributions from many technical and procedural reviews have helped make this module one that will provide needed knowledge of hydrology and hydraulics to SCS employees.



## **Module Description**

### **Objectives**

Upon completion of this module, the participant will be able to:

1. List and describe the elements needed to calculate a runoff curve number.
2. Calculate a runoff curve number from given field data.
3. Calculate a runoff curve number for complex areas.

The participant should be able to perform at ASK Level 3 (Perform with Supervision) after completing this module.

### **Prerequisites**

Module 103 - Runoff Concepts

### **Equipment Needed**

A dot grid training aid is needed to complete this module.

### **Length**

Participant should take as long as necessary to complete this module. Training time for this module is approximately two hours.

### **Who May Take the Module**

This module is intended for all SCS personnel who calculate runoff curve numbers for a drainage area.

### **Method of Completion**

This module is self-study, but the state or NTC should select a resource person to answer any questions that the participant's supervisor cannot handle.

### **Content**

Elements needed to calculate a runoff curve number and actual calculations of runoff curve numbers using given field data are presented in this module.



# Contents

Preface .....	iii
Acknowledgment .....	iii
Module Description .....	v
Introduction .....	1
Elements Needed to Compute Runoff Curve Numbers .....	1
Activity 1 .....	7
Activity 1 – Solution .....	11
Activity 2 .....	13
Activity 2 – Solution .....	14
Runoff Curve Number Computations.....	15
Activity 3 .....	17
Activity 3 – Solution. ....	18
Activity 4 .....	19
Activity 4 – Solution .....	20
CN Computations for Complex Areas .....	21
Activity 5 .....	23
Activity 5 – Solution .....	24,25
Activity 6 .....	27
Activity 6 – Solution .....	28, 29
Summary .....	31
Appendix A– Charts and Tables .....	A1
Certification of Completion .....	Last page



## Introduction

The SCS method of estimating volume runoff is based on procedures developed over the last three decades. Because most SCS work is with ungaged watersheds, this method is usable with easily attainable watershed parameters and rainfall data. In this module, you will learn to compute a runoff curve number, which can then be used in runoff calculations.

A more detailed discussion on the estimation of a hydrologic soil cover complex from watershed parameters, hydrologic soil groupings, land use and treatment classes is found in Chapters 7, 8, and 9, respectively of Section 4, National Engineering Handbook (NEH).

## Elements Needed to Compute Runoff Curve Numbers

SCS has developed a method of combining the effects of soils, watershed characteristics, and land use into a single parameter. This parameter is the runoff curve number (CN) and represents the hydrologic soil cover complex of the watershed. A single runoff curve number can be developed for a watershed with a single land use and one soil type, and for a watershed with a combination of soils and land uses.

Runoff curve numbers are limited to:

1. Single events.
2. Maximum 24-hour duration rain events.
3. Areas with unfrozen ground conditions.
4. Representation of average watershed conditions when flooding or conditions when annual flood event occurs.
5. Direct runoff volume.

The elements needed to compute a runoff curve number for a watershed are soil type and cover description, which is combination of cover type, land treatment, and hydrologic condition. Soil type and cover description are easily obtained. The information needed and the sources of this information will be discussed in detail in the first section of this module. The second section will discuss how to compute an average runoff curve number for either a watershed, a drainage area, or a field.

## Soil Type

The Soil Conservation Service has a wealth of soils information, including soils maps, throughout the United States. Part of this information relates to soil names and their relative intake or infiltration rate. Each soil symbol on the map has a related soil name. Associated with that name is the

infiltration rate, soil texture, depth, hydrologic soil group, etc. Basic soils information is listed on the soil interpretation sheets.

### **Soil properties**

Soil properties influence the peak rate of runoff from rainfall and must be considered. The single most important soil property is the minimum rate of infiltration obtained for a bare soil after prolonged wetting. Soils have been grouped according to the infiltration rate (surface conditions) and transmission rate (profile conditions). The four hydrologic soil groups as defined by SCS are described in Module 103 - Runoff Concepts.

The final infiltration capacity has been determined for a wide range of bench mark soils or key soils using infiltrometers. Infiltrimeters are devices used to measure the intake rate of soil. The remainder of the soils have been classified by soil scientists using correlation techniques.

Chapter 2, EFM, and Appendix A, TR-55 (Study Guide Appendix A) list more than 9000 soils that have been mapped and assigned soil series names and hydrologic soil groups. Some states have developed individual state listings and have issued these as a technical note.

Some soils can change hydrologic groupings depending on the water table. This is covered by footnote in Appendix A. For example, Adrian A/D is hydrologic soil group "A" when drained and "D" when undrained.

In some locations, urban activities may change the hydrologic soil group because of compaction, loss of the A horizon, and reshaping or grading of the landscape. There is a discussion on page A-1 of TR-55 explaining how a disturbed soil profile in an urban area may be evaluated.

The local soil scientist can provide assistance in selecting the correct hydrologic soil groups if the soil is not listed or if local conditions might alter information in Appendix A.

Precise measurement of soil-group areas by planimetry of soil areas or weighing map cuttings is seldom necessary for hydrologic purposes. Normally, the percentage of the watershed occupied by a soil type can be determined using the dot counter techniques.

### **Example**

From a sample soils map for an indicated watershed, determine the percentage of the watershed in each hydrologic soil group.

1. Outline the watershed on a soils map.
2. Classify the soils into group A, B, C, or D on the soils map or transfer this information to a topographic map of the watershed.
3. Place a grid or dot counter over the watershed soils map, count the number of grid intersections falling on each soil group, and tabulate. A planimeter can be used to measure the area of each soil group and land use.

4. Determine the percentage for each hydrologic soil group within the watershed.

Simplified versions for determining the extent of soil groups are often used in practice. Often the soil types may fall predominantly into one or two hydrologic soil groups. As a general rule, two groups can be combined if one is less than three percent of the watershed.

A serious under-estimation of runoff can result if a watershed with 90% of its soils in the "A" group and 10% in "D" is classified as all "A," since most of its storm runoff could come from the "D" soils.

5. If there is some question about how to prepare a hydrologic soil grouping map or estimate the percent of each soil group within the watershed, talk to a local soil scientist.

## Cover Description

Vegetation affects peak rates of runoff in several ways:

1. The foliage and its litter maintain the soil's infiltration potential by preventing the sealing of the soil surface from the impact of the raindrops.
2. Some of the raindrops are retained on the surface of the foliage, increasing their chance of being evaporated back to the atmosphere.
3. Some of the intercepted moisture takes so long to drain from the plant to the soil that it is withheld from the initial period of runoff.

Conservation practices, in general, reduce sheet erosion and thereby maintain an open structure of the soil surface. This reduces the volume of runoff but the effect diminishes rapidly with increase in storm magnitude.

Contouring and terracing reduce sheet erosion and increase the amount of rainfall withheld from runoff by the small reservoirs they form. Leaving residue on the soil surface and no-till or minimum tillage practices also help reduce the volume of runoff.

### Rural cover types

The typical rural cover types, as shown in Chapter 2, EFM and Table 9.1, NEH-4, include:

1. **Fallow** – Agricultural land kept as bare as possible to conserve moisture for use the following year.
2. **Row Crop** – Any field crop planted in rows far enough apart so as to expose most of the soil surface to the impact of rainfall.
3. **Small Grain** – Wheat, oats, barley, flax, etc., planted in rows close enough that the soil surface is not exposed except during or shortly after planting.

4. **Close-seeded legumes or rotation meadow** – Alfalfa, sweet clover, timothy, etc., or combinations, which are either planted in close rows or broadcast.
5. **Grassland** – Is evaluated using the three hydrologic conditions of native pasture or range, which are based on cover effect, not forage production.
  - a. **Poor–heavily grazed.** Either has no mulch or has plant cover on less than 1/2 of the area.
  - b. **Fair–not heavily grazed.** Has plant cover on 1/2 to 3/4 of the area.
  - c. **Good–lightly grazed.** Has plant cover on more than 3/4 of the area.
6. **Meadow** – A field on which grass is grown continuously, protected from grazing, and generally mowed for hay.
7. **Woods** – Small isolated groves of trees being raised for farm or ranch use.
  - a. **Poor–heavily grazed or regularly burned.** Litter, small trees, and brush are destroyed.
  - b. **Fair–grazed, but not burned.** There may be some litter, but these woods are not protected.
  - c. **Good–protected from grazing.** Litter and shrubs cover the soil.
8. **Forests** – Areas covered by national or commercial forests. The U.S. Forest Service has a procedure for determining hydrologic conditions on forest lands. Many times they will develop their information in Forest Hydrologic Condition Classes. Chapter 9, NEH-4 contains further information on the Forest Service procedure.
9. **Water Surfaces** – Lakes, ponds, marshes, etc.
10. **Impervious Surfaces** – Roads, roofs, parking lots, etc. outside typical urban cover types.

### Urban cover types

The typical urban cover types, as shown in Table 2-2a, TR-55, (Appendix A) include:

1. **Residential houses** – on various lot sizes. This includes the impervious areas of the roof, streets, driveways, etc. within the subdivision with the typical percent impervious shown.
2. **Commercial and business** – small business shops, etc. along a street with the typical percent impervious shown.

3. **Industrial** – manufacturing areas with the typical percent impervious shown.
4. **Streets and roads** – paved areas, both including and excluding right of way. Unpaved areas include right of way.
5. **Open areas** – urban areas where vegetation has been established. Could include lawns, parks, golf courses, cemeteries, etc.
6. **Newly graded areas** – urban areas where the ground has been shaped or disturbed and where no vegetation has been established.
7. **Connected impervious areas** – urban areas where the impervious area is directly connected to the storm water drainage system.
8. **Unconnected impervious area** – urban areas where the impervious area is not directly connected to the stormwater drainage system. For example, outflow from the downspout is allowed to spread over the lawn before entering the stormwater drainage system.

### Land treatment

Agricultural land management includes mechanical practices, such as contouring, terracing, and rotation. These types of management practices also reflect or influence the hydrologic condition of the particular land use.

1. **Rotations** – are planned sequences of crops; hydrologically, rotations range from “poor” to “good” in proportion to the amount of dense vegetation in the rotation.
  - a. Poor rotations are generally one cropland use, such as continuous corn, wheat, or combinations of row crops, small grain, and fallow.
  - b. Good rotations generally contain alfalfa or other close-seeded legumes or grasses to improve tilth and increase infiltration.
2. **Straight-Row** – fields are those farmed in straight rows either up and downhill or across the slope. Where land slopes are less than about 2 percent, farming across the slope in straight rows is equivalent to contouring.
3. **Contouring** – contoured fields have been farmed on the contour and their hydrologic effect is to increase the surface storage by providing furrows.
4. **Terracing** – refers to graded or open-end terraces with outlets and their hydrologic effect is to increase storage and opportunity for infiltration.

Land use and treatment classes can be readily obtained by observation, recent photos, or by consultation with work unit personnel.

**Hydrologic Soil  
Cover Complex**

Locations of the classes within the same hydrologic watershed unit used for the soil groups are usually ignored. The classes are tabulated using percentages or acreages. The accuracy of the areal extent of the data should be compatible with that of the soil group data.

The combination of hydrologic soil group and cover type information results in a hydrologic soil cover complex. Each hydrologic soil cover complex has been assigned a runoff curve number. The CN indicates the runoff potential of a hydrologic soil cover complex. The higher the CN, the higher the runoff potential.

Runoff curve numbers represent the median condition of the hydrologic soil cover complex when the largest annual flood occurs. This is the assumed hydrologic soil cover complex condition when the design flood of a conservation measure occurs.

Runoff curve numbers are to be used with single flood event models and not with continuous hydrologic models.

Runoff curve numbers should not be used to estimate the impact of frozen ground or frozen ground with snow cover on the design peak flow estimate.

Individual states may have developed supplemental curve numbers for hydrologic soil-covers complexes not identified in either Chapter 2, EFM or Chapter 2, TR-55. These documents should be used where applicable.

**Activities 1 and 2**

At this time, complete Activities 1 and 2 in your Study Guide to review the material just covered. After finishing each Activity, compare your answers with the solution provided. When you are satisfied that you understand the material, continue with the Study Guide text.

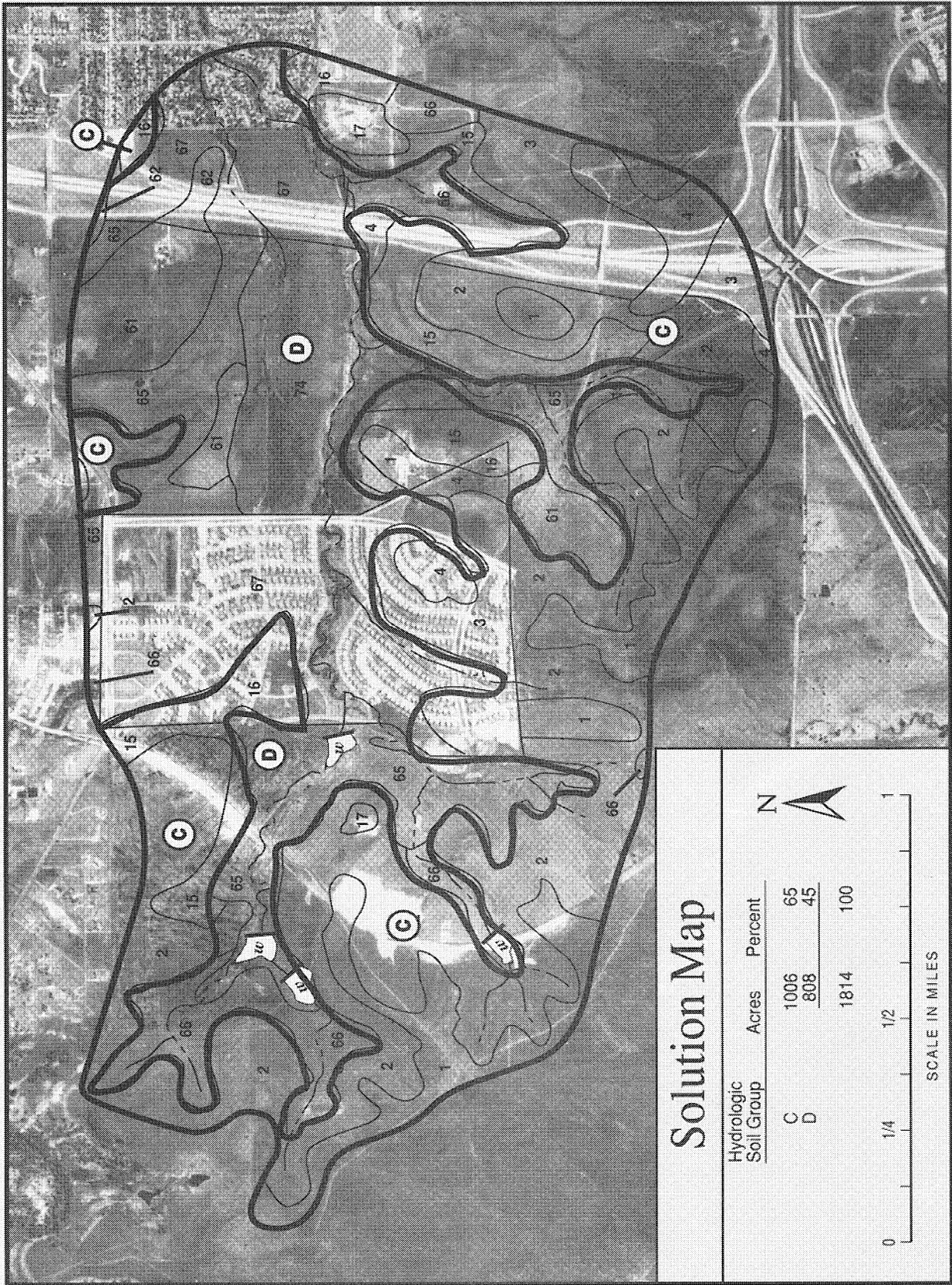
## **Activity 1**

From the sample soils map and legend sheet on the following pages, determine the percentage of the indicated watershed in each hydrologic soil group. Refer to Appendix A of your Study Guide for applicable charts and tables. For this Activity, do not assume the hydrologic soil group has changed because of the urban land complex.

## SOIL LEGEND

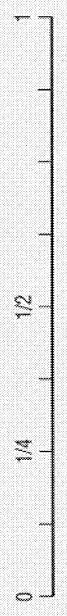
SYMBOL	NAME	SYMBOL	NAME
1	Aledo gravelly clay loam, 1 to 8 percent slopes	45	Mabank fine sandy loam, 0 to 1 percent slopes
2	Aledo-Bolar complex, 5 to 20 percent slopes	46	Maloterra, Aledo, and Brackett soils, 3 to 20 percent slopes
3	Aledo-Bolar-Urban land complex, 3 to 20 percent slopes	47	Medlin clay, 5 to 15 percent slopes
4	Aledo-Urban land complex, 1 to 8 percent slopes	48	Mingo clay loam, 1 to 3 percent slopes
5	Altoga silty clay loam, 5 to 12 percent slopes	49	Mingo-Urban land complex, 1 to 3 percent slopes
6	Aquilla loamy fine sand, 1 to 5 percent slopes	50	Navo clay loam, 1 to 3 percent slopes
7	Arents, frequently flooded	51	Navo-Urban land complex, 1 to 3 percent slopes
8	Arents, loamy	52	Nimrod fine sand, 1 to 5 percent slopes
9	Ba-tsil fine sandy loam, 0 to 3 percent slopes	53	Ovan clay, occasionally flooded
10	Ba-tsil-Urban land complex, 0 to 5 percent slopes	54	Ovan clay, frequently flooded
11	Brome fine sandy loam, 1 to 5 percent slopes	55	Ovan-Urban land complex, occasionally flooded
12	Brome-Aubrey-Rayex complex, 5 to 15 percent slopes	56	Pits, quarries
13	Brome-Aubrey-Urban land complex, 5 to 15 percent slopes	57	Ponder clay loam, 1 to 3 percent slopes
14	Bolar clay loam, 1 to 3 percent slopes	58	Ponder-Urban land complex, 0 to 3 percent slopes
15	Bolar clay loam, 3 to 5 percent slopes	59	Pulexas fine sandy loam, frequently flooded
16	Bolar-Urban land complex, 1 to 5 percent slopes	60	Pulexas-Urban land complex, occasionally flooded
17	Brackett clay loam, 3 to 8 percent slopes	61	Purves clay, 0 to 3 percent slopes
18	Bryanon clay, 0 to 1 percent slopes	62	Purves-Urban land complex, 0 to 3 percent slopes
19	Burleson clay, 0 to 1 percent slopes	63	Rader fine sandy loam, 0 to 3 percent slopes
20	Chatt silty clay, 1 to 3 percent slopes	64	Rader-Urban land complex, 0 to 3 percent slopes
21	Crosstell fine sandy loam, 1 to 3 percent slopes	65	Sanger clay, 1 to 3 percent slopes
22	Crosstell fine sandy loam, 3 to 6 percent slopes	66	Sanger clay, 3 to 5 percent slopes
23	Crosstell-Urban land complex, 1 to 6 percent slopes	67	Sanger-Urban land complex, 1 to 5 percent slopes
24	Ferris clay, 5 to 12 percent slopes, eroded	68	San Saba clay, 0 to 2 percent slopes
25	Ferris-Heiden complex, 2 to 5 percent slopes	69	Selden loamy fine sand, 1 to 3 percent slopes
26	Frio silty clay, occasionally flooded	70	Silawa fine sandy loam, 3 to 8 percent slopes
27	Frio silty clay, frequently flooded	71	Silstid loamy fine sand, 1 to 5 percent slopes
28	Frio-Urban land complex, occasionally flooded	72	Silstid-Urban land complex, 1 to 5 percent slopes
29	Gasil fine sandy loam, 1 to 3 percent slopes	73	Sidell clay, 0 to 1 percent slopes
30	Gasil fine sandy loam, 3 to 8 percent slopes	74	Sidell clay, 1 to 3 percent slopes
31	Gasil sandy clay loam, graded, 1 to 5 percent slopes	75	Speck clay loam, 0 to 3 percent slopes
32	Gasil-Urban land complex, 1 to 8 percent slopes	76	Stephenville fine sandy loam, 8 to 15 percent slopes
33	Heiden clay, 1 to 3 percent slopes	77	Sunev clay loam, 1 to 3 percent slopes
34	Houston Black clay, 1 to 3 percent slopes	78	Sunev clay loam, 3 to 8 percent slopes
35	Houston Black-Urban land complex, 1 to 4 percent slopes	79	Sunev-Urban land complex, 2 to 8 percent slopes
36	Justin loam, 1 to 3 percent slopes	80	Trinity clay, frequently flooded
37	Konsil fine sandy loam, 1 to 5 percent slopes	81	Urban land
38	Leson clay, 1 to 3 percent slopes	82	Weatherford fine sandy loam, 3 to 8 percent slopes
39	Lindale clay loam, 1 to 3 percent slopes	83	Whitesboro loam, frequently flooded
40	Lindale-Urban land complex, 1 to 3 percent slopes	84	Wilson clay loam, 0 to 2 percent slopes
41	Lott silty clay, 1 to 3 percent slopes	85	Wilson-Urban land complex, 0 to 2 percent slopes
42	Lott-Urban land complex, 1 to 5 percent slopes	86	Windthorst fine sandy loam, 1 to 3 percent slopes
43	Luckenbach clay loam, 1 to 3 percent slopes	87	Windthorst fine sandy loam, 3 to 8 percent slopes
44	Luckenbach-Urban land complex, 1 to 3 percent slopes	88	Windthorst fine sandy loam, 2 to 8 percent slopes, eroded





### Solution Map

Hydrologic Soil Group	Acres	Percent
C	1006	65
D	808	45
	1814	100

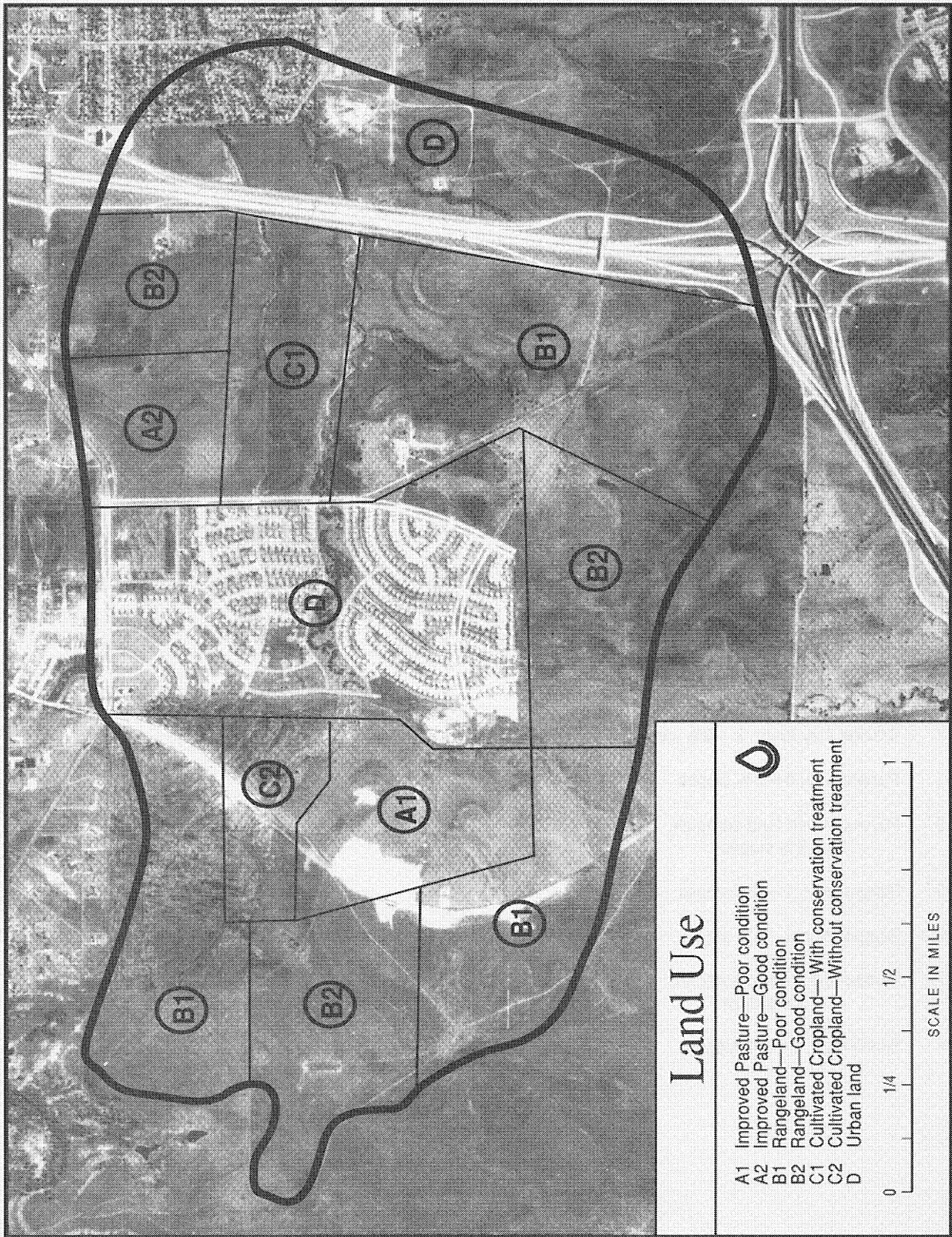


SCALE IN MILES

## Activity 1 – Solution

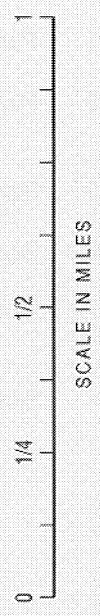
From the sample soils map and legend sheet on the following pages, determine the percentage of the indicated watershed in each hydrologic soil group. Refer to Appendix A of your Study Guide for applicable chart and tables. For this activity, do not assume the hydrologic soil group has changed because of the urban land complex.

Map Symbol	Soil Name	Hydrologic Soil Group	Acres/ Intersections	%
1	Aledo gr. clay loam, 1 – 8% slopes	C	1006 ac	55%
2	Aledo-Bolar complex, 5 – 20% slopes	C		
3	Aledo-Bolar-Urban land complex, 3 – 20% slopes	C		
4	Aledo-Urban land complex, 1 – 8% slopes	C		
14	Bolar clay loam, 1 – 3% slopes	C		
15	Bolar clay loam, 3 – 5% slopes	C		
16	Bolar-Urban land complex, 1 – 5% slopes	C		
17	Bracket clay loam, 3 – 8% slopes	C	808 ac	45%
61	Purves clay, 0 – 3% slopes	D		
62	Purves-Urban land complex, 0 – 3% slopes	D		
65	Sanger clay, 1 – 3% slopes	D		
66	Sanger clay, 3 – 5% slopes	D		
67	Sanger-Urban land complex, 1 – 5% slopes	D		
74	Slidell clay, 1 – 3% slopes	D		
			<u>1814 ac</u>	<u>100%</u>



### Land Use

- A1 Improved Pasture—Poor condition
- A2 Improved Pasture—Good condition
- B1 Rangeland—Poor condition
- B2 Rangeland—Good condition
- C1 Cultivated Cropland— With conservation treatment
- C2 Cultivated Cropland—Without conservation treatment
- D Urban land



## **Activity 2**

From the sample aerial photograph on the preceding page, determine the percentage of the indicated watershed in each cover description. Refer to Appendix A of your Study Guide for applicable charts and tables.

## Activity 2 – Solution

From the sample aerial photograph on the preceding page, determine the percentage of the indicated watershed in each cover description. Refer to Appendix A of your Study Guide for applicable charts and tables.

Land Use	Acres	%
Improved Pasture – poor condition	112	6.2
Improved Pasture – good condition	73	4.0
Rangeland – poor condition	541	29.8
Rangeland – good condition	334	18.4
Cultivated cropland – with cons. treatment	96	5.3
Cultivated cropland – w/o cons. treatment	53	2.9
Urban land	<u>605</u>	<u>33.4</u>
	1,814	100.0

## Runoff curve number computations

The runoff curve numbers for a wide range of hydrologic soil cover complexes are shown in Chapter 2, EFM and Chapter 2, TR-55. Each document lists the runoff curve numbers for specific cover descriptions.

### Rural Cover Description

The runoff curve number for a wide range of rural hydrologic soil cover complexes are shown in Chapter 2, EFM and Chapter 2, TR-55.

### Urban Cover Description

The runoff curve numbers for a wide range of urban hydrologic soil cover complexes are shown in Chapter 2, TR-55. While urban CN's are also given in Chapter 2, EFM, some restrictions apply to their use. Therefore, use TR-55 when working with urban areas. The runoff curve numbers for the urban hydrologic soil cover complex are for the specific percent impervious shown in Chapter 2, TR-55. The values shown represent the average percent impervious for that cover description.

If your percent impervious for a listed cover description is different, then develop a new CN for that hydrologic soil cover complex as follows:

$$(\% \text{ area impervious}) (98) + (1 - \% \text{ impervious}) (\text{CN open space in good condition for that soil})$$

For example, one-acre lots on a C hydrologic soil group have total impervious area percentage of 15. The estimated CN would be:

$$(0.15) (98) + (1 - 0.15) (74) = 77.6 = 78$$

The impervious runoff curve number from Table 2-2a is 98 and open space in good condition on a C hydrologic soil group from Table 2-2a is 74.

## Activities 3 and 4

At this time, complete Activities 3 and 4 in your Study Guide to review the material just covered. After finishing each Activity, compare your answers with the solution provided. When you are satisfied that you understand the material, continue with the Study Guide text.



## Activity 3

Determine the runoff curve numbers for the hydrologic soil cover complexes listed below. Refer to Appendix A of your Study Guide for applicable charts and tables.

---

Hydrologic Soil Group	Cover Description	CN
B	Row crops – straight row & crop residue, in good condition	
B	Small grain – contoured, in poor condition	
B	Meadow – in good condition	
C	Woods – in fair condition	

---

## Activity 3 – Solution

Determine the runoff curve numbers for the hydrologic soil cover complexes listed below. Refer to Appendix A of your Study Guide for applicable charts and tables.

Hydrologic Soil Group	Cover Description	CN
B	Row crops – straight row & crop residue, in good condition	75
B	Small grain – contoured, in poor condition	74
B	Meadow – in good condition	58
C	Woods – in fair condition	73

## Activity 4

Determine the runoff curve number for the hydrologic soil cover complexes listed below. Refer to Appendix A in your Study Guide for applicable charts and tables.

Hydrologic Soil Group	Cover Description	CN
A	Residential – 1 ac.	
B	Commercial	
C	New graded area	
B	Residential – 1 ac. 18% impervious	

## Activity 4 – Solution

Determine the runoff curve number for the hydrologic soil cover complexes listed below. Refer to Appendix A in your Study Guide for applicable charts and tables.

Hydrologic Soil Group	Cover Description	CN
A	Residential – 1 ac.	51
B	Commercial	92
C	New graded area	91
B	Residential – 1 ac. 18% impervious	$(0.18)(98) + (1-0.18)(61)$ $= 67.7 = 68$

## CN Computations for Complex Areas

The runoff curve number for a complex hydrologic soil-cover complex is developed by weighing areas of CN's within the total drainage area as:

$$\begin{array}{lcl}
 (\text{CN}) \times (\text{acres}) = & & (\text{CN})(\% = \\
 (\text{CN}) \times (\text{acres}) = & \text{or} & (\text{CN})(\% = \\
 (\text{CN}) \times (\text{acres}) = \underline{\hspace{2cm}} & & (\text{CN})(\% = \underline{\hspace{2cm}}
 \end{array}$$

Weighted CN =  $\frac{\text{Total Product}}{\text{Total Area}}$  = to the nearest whole value

For example, using acres and Chapter 2, EFM:

Hydrologic soil cover complex	Acres	CN	Product
Row Crop-Soil B (contoured, good)	220	75	16,500
Row Crop-Soil D (straight row, good)	150	89	13,350
Pasture-Soil D (good)	<u>30</u>	80	<u>2,400</u>
	<u>400</u>		<u>32,250</u>

Weighted CN =  $\frac{32,250}{400} = 80.6 = 81$  to nearest whole value

For example, using % and Chapter 2, TR-55:

Hydrologic soil cover complex	Acres	%	CN	Product
House-Soil C (1/2 acre lots)	220	0.550	80	44
Commercial-Soil D	150	0.375	95	37
Open Areas-Soil D (good)	<u>30</u>	<u>0.075</u>	80	<u>6</u>
	<u>400</u>	<u>1.000</u>		<u>87</u>

### Activities 5 and 6

At this time, complete Activities 5 and 6 in your Study Guide to review the material just covered. After finishing each Activity, compare your answers with the solution provided. When you are satisfied that you understand the material, continue with the Study Guide text.



## Activity 5

Determine the weighted average runoff curve number for the watershed described below. Refer to Appendix A of your Study Guide for applicable charts and tables.

Soil Name	Cover Description	Acres
Dover	Row Crops—SR & CR in good condition	500
Crofton	Small grain—contoured contoured, in poor condition	300
Greenville	Meadow—in good condition	150
Odessa	Woods—in fair condition	50

## Activity 5 – Alternate Solution 1

Determine the weighted average runoff curve number for the watershed described below. Refer to Appendix A of your Study Guide for applicable charts and tables.

Soil Name	Cover Description	Acres	Hydrologic Soils Group	CN	Product
Dover	Row Crops—SR & CR in good condition	500	B	75	37,500
Crofton	Small grain—contoured, in poor condition	300	B	74	22,200
Greenville	Meadow—in good condition	150	B	58	8,700
Odessa	Woods—in fair condition	50	D	79	3,950
		<u>1,000</u>			<u>72,350</u>

$$\text{weighted CN} = \frac{72,350}{1000} = 72.3 \text{ use } 72$$

## Activity 5 – Alternate Solution 2

Determine the weighted average runoff curve number for the watershed described below. Refer to Appendix A of your Study Guide for applicable charts and tables.

Soil Name	Cover Description	Acres	% Area	Hydrologic Soils Group	CN	Product
Dover	Row Crops—SR & CR in good condition	500	0.50	B	75	37.5
Crofton	Small grain—contoured, in poor condition	300	0.30	B	74	22.2
Greenville	Meadow—in good condition	150	0.15	B	58	8.7
Odessa	Woods—in fair condition	50	0.05	D	79	3.9
		<u>1,000</u>	<u>1.00</u>			<u>72.3</u>
						Use 72



## Activity 6

Determine the weighted average runoff curve number for the watershed described below. Refer to Appendix A of your Study Guide for applicable charts and tables.

Soil Name	Cover Description	Acres
Dover	Row Crops-straight row and crop residue, in good condition	300
Newberg	Meadow-in good condition	200
Crofton	1 ac Residential	200
Odessa	Industrial	100
Dover	1/2 ac. Residential 27% impervious	100
Greenville	New graded	100

## Activity 6 - Alternate Solution 1

Determine the weighted average runoff curve number for the watershed described below. Refer to Appendix A of your Study Guide for applicable charts and tables.

Soil Name	Cover Description	Acres	Hydrologic Soils Group	CN	Product
Dover	Row Crops-straight row and crop residue, in good condition	300	B	75	22,500
Newberg	Meadow-in good condition	200	B	58	11,600
Crofton	1 ac Residential	200	B	68	13,600
Odessa	Industrial	100	D	93	9,300
Dover	1/2 ac. Residential 27% impervious (0.27)(98)+(1 -0.27)(61)	100	B	71	7,100
Greenville	New graded	<u>100</u>	B	86	<u>8,600</u>
		1,000			72,700

$$\text{weighted CN} = \frac{72,700}{1,000} = 72.7 \text{ use } 73$$

## Activity 6 – Alternate Solution 2

Determine the weighted average runoff curve number for the watershed described below. Refer to Appendix A of your Study Guide for applicable charts and tables.

Soil Name	Cover Description	Acres	% Area	Hydrologic Soils Group	CN	Product
Dover	Row Crops—SR & CR in good condition	300	0.30	B	75	22.5
New Castle	Meadow—in good condition	200	0.20	B	58	11.6
Crofton	1 ac Residential	200	0.20	B	68	13.6
Odessa	Industrial	100	0.10	D	93	9.3
Dover	1/2 ac. Residential 27% impervious (0.27) (98) + (1-0.27) (61)	100	0.10	B	71	7.1
Greenville	New graded	100	0.10	B	86	8.6
		<u>1,000</u>	<u>1.00</u>			<u>72.7</u>
						use 73



## Summary

In summary, we have learned that a runoff curve number for a watershed with a mixture of cover descriptions and soil types can be easily determined. Each soil cover complex has a unique runoff curve number.

The hydrologic soil group information is in either Appendix A, TR-55 or Chap. 2, EFM. Urban cover description CN's are shown in Table 2-2a, TR-55 and rural CN's are shown in Chapter 2, EFM.

The CN's are to be used with single event design storms or events and represent the median condition when the largest yearly event occurs. They do not account for the impact of frozen ground on runoff rates and should not be used in continuous models.

You have proven that you can calculate the runoff curve number for a complex watershed by two methods. You have also seen that the two methods produce identical results. The methods are simple and easy to use.

Retain this Study Guide as a reference until you are satisfied that you have successfully mastered all the methods covered. It will provide an easy review at any time if you should encounter a problem.

If you have had problems understanding the module or if you would like to take additional, related modules, contact your supervisor.

When you are satisfied that you have completed this module, remove the Certification of Completion sheet (last page of the Study Guide), fill it out, and give it to your supervisor to submit, through channels, to your State or NTC Training Officer.



**Appendix A**  
**Charts and Tables**



Table 2-2a.—Runoff curve numbers for urban areas<sup>1</sup>

Cover description		Curve numbers for hydrologic soil group—			
		A	B	C	D
Cover type and hydrologic condition	Average percent impervious area <sup>2</sup>				
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.) <sup>3</sup> :					
Poor condition (grass cover < 50%) .....		68	79	86	89
Fair condition (grass cover 50% to 75%).....		49	69	79	84
Good condition (grass cover > 75%) .....		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way) .....					
		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way).....					
		98	98	98	98
Paved; open ditches (including right-of-way) .....					
		83	89	92	93
Gravel (including right-of-way) .....					
		76	85	89	91
Dirt (including right-of-way) .....					
		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) <sup>4</sup> ...					
		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders) .....					
		96	96	96	96
Urban districts:					
Commercial and business.....					
	85	89	92	94	95
Industrial.....					
	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses).....					
	65	77	85	90	92
1/4 acre .....					
	38	61	75	83	87
1/3 acre .....					
	30	57	72	81	86
1/2 acre .....					
	25	54	70	80	85
1 acre .....					
	20	51	68	79	84
2 acres .....					
	12	46	65	77	82
<i>Developing urban areas</i>					
Newly graded areas (pervious areas only, no vegetation) <sup>5</sup> .....					
		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

<sup>1</sup>Average runoff condition, and  $I_a = 0.2S$ .

<sup>2</sup>The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

<sup>3</sup>CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

<sup>4</sup>Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

<sup>5</sup>Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2b.—Runoff curve numbers for cultivated agricultural lands<sup>1</sup>

Cover description			Curve numbers for hydrologic soil group—			
Cover type	Treatment <sup>2</sup>	Hydrologic condition <sup>3</sup>	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
	C&T + CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
	C&T + CR	Poor	60	71	78	81
		Good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

<sup>1</sup>Average runoff condition, and  $I_a = 0.2S$ .

<sup>2</sup>Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

<sup>3</sup>Hydrologic condition is based on combination of factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes in rotations, (d) percent of residue cover on the land surface (good  $\geq 20\%$ ), and (e) degree of surface roughness.

*Poor:* Factors impair infiltration and tend to increase runoff.

*Good:* Factors encourage average and better than average infiltration and tend to decrease runoff.

Table 2-2c.—Runoff curve numbers for other agricultural lands<sup>1</sup>

Cover description		Curve numbers for hydrologic soil group—			
		A	B	C	D
Cover type	Hydrologic condition				
Pasture, grassland, or range—continuous forage for grazing. <sup>2</sup>	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. <sup>3</sup>	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30	48	65	73
Woods—grass combination (orchard or tree farm). <sup>5</sup>	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. <sup>6</sup>	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

<sup>1</sup>Average runoff condition, and  $I_a = 0.2S$ .

<sup>2</sup>*Poor*: < 50% ground cover or heavily grazed with no mulch.  
*Fair*: 50 to 75% ground cover and not heavily grazed.  
*Good*: > 75% ground cover and lightly or only occasionally grazed.

<sup>3</sup>*Poor*: < 50% ground cover.  
*Fair*: 50 to 75% ground cover.  
*Good*: > 75% ground cover.

<sup>4</sup>Actual curve number is less than 30; use CN = 30 for runoff computations.

<sup>5</sup>CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

<sup>6</sup>*Poor*: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.  
*Fair*: Woods are grazed but not burned, and some forest litter covers the soil.  
*Good*: Woods are protected from grazing, and litter and brush adequately cover the soil.

Table 2-2d.—Runoff curve numbers for arid and semiarid rangelands<sup>1</sup>

Cover description		Curve numbers for hydrologic soil group—			
Cover type	Hydrologic condition <sup>2</sup>	A <sup>3</sup>	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

<sup>1</sup>Average runoff condition, and  $I_a = 0.2S$ . For range in humid regions, use table 2-2c.

<sup>2</sup>Poor: <30% ground cover (litter, grass, and brush overstory).

Fair: 30 to 70% ground cover.

Good: >70% ground cover.

<sup>3</sup>Curve numbers for group A have been developed only for desert shrub.

# Appendix A: Hydrologic soil groups

Soils are classified into hydrologic soil groups (HSG's) to indicate the minimum rate of infiltration obtained for bare soil after prolonged wetting. The HSG's, which are A, B, C, and D, are one element used in determining runoff curve numbers (see chapter 2). For the convenience of TR-55 users, exhibit A-1 lists the HSG classification of United States soils.

The infiltration rate is the rate at which water enters the soil at the soil surface. It is controlled by surface conditions. HSG also indicates the transmission rate—the rate at which the water moves within the soil. This rate is controlled by the soil profile. Approximate numerical ranges for transmission rates shown in the HSG definitions were first published by Musgrave (USDA 1955). The four groups are defined by SCS soil scientists as follows:

Group A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission (greater than 0.30 in/hr).

Group B soils have moderate infiltration rates when thoroughly wetted and consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (0.15-0.30 in/hr).

Group C soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. These soils have a low rate of water transmission (0.05-0.15 in/hr).

Group D soils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission (0-0.05 in/hr).

In exhibit A-1, some of the listed soils have an added modifier; for example, "Abrazo, gravelly." This refers to a gravelly phase of the Abrazo series that is found in SCS soil map legends.

## Disturbed soil profiles

As a result of urbanization, the soil profile may be considerably altered and the listed group classification may no longer apply. In these circumstances, use the following to determine HSG according to the texture of the new surface soil, provided that significant compaction has not occurred (Brakensiek and Rawls 1983):

### *HSG Soil textures*

- A Sand, loamy sand, or sandy loam
- B Silt loam or loam
- C Sandy clay loam
- D Clay loam, silty clay loam, sandy clay, silty clay, or clay

## Drainage and group D soils

Some soils in the list are in group D because of a high water table that creates a drainage problem. Once these soils are effectively drained, they are placed in a different group. For example, Ackerman soil is classified as A/D. This indicates that the drained Ackerman soil is in group A and the undrained soil is in group D.



## Exhibit A-1: Hydrologic soil groups for United States soils

AABAB	D	ADAVEN	C	AMREN	E	ALDING	D	ALSEA	B
AABERG	D	ADDICKS	D	AMRNKLIN	C	ALDINO	C	ALSPAUGH	C
AARON	C	ADDIELOU	B	AMRS	B	ALEDO	C	ALSTAD	C
AASTAD	B	ADE	A	AHTANUM	D	ALEGROS	C	ALSTONY	B
AAZDAHL	B	ADEK	B	AHTANUM, DRAINED	C	ALEKNAGIK	C	ALSUP	C
ABAC	D	ADEL	B	AMWANNEE	B	ALEMEDA	C	ALTAMONT	D
ABAJD	C	ADEL, WET	D	AIEDONITO	C	ALEX	B	ALTAPEAK	B
ABALOBADIAH	S	ADELAIDE	D	AIDG	D	ALEXANDER	C	ALTAR	B
ABARCA	B	ADELANTO	B	AIKEN	B	ALEXANDRIA	C	ALTAVISTA	C
ABBAYE	B	ADELINO	B	AIKMAN	D	ALFIR	B	ALTDORF	B
ABBIE	B	ADELINO,	C	AIKMAN, STONY	C	ALFLACK	C	ALTHOUSE	D
ABBOTT	D	SALINE-ALKALI		AILEY	E	ALFOPD	B	ALTIKREST	B
ABBOTTSTOWN	C	ADELPHIA	B/C	AIYELIJA	E	ALGANSEE	E	ALTITA	C
ABCAL	D	A DEN	C	A INAKEA	B	ALGARROBO	A	ALTMAR	B
ABEGG	B	A DENA	C	A INSLEY	B	ALGERITA	B	ALTO	B
ABELA	B	ADGER	D	A INSWORTH	E	ALGIERE	C/D	ALTOGA	C
ABELL	B	ADIEUX	B	A IRMCNT	C	ALGOA	C	ALTON	C
ABERDEEN	C	ADILIS	B	A IRPOFT	D	ALGOMA	B/D	ALTDONA	A
ABERONE	B	ADIN	D	A ITS	E	ALHAMBPA	B	ALTUDA	D
ABERSITO	C	ADIOS	D	A JC	C	ALHARK	C	ALTURAS	C
ABERT	R	ADJUNTAS	C	A JDLITD	D	ALICE	B	ALTUS	B
ABES	D	ADKINS	B	AKAD	C	ALICEL	B	ALTVAN	B
ABGESE	B	ADKINS, ALKALI	C	AKAKA	A	ALICIA	B	ALUF	A
ABIENE	C	ADKINS, WET	C	AKAN	B/D	ALIDA	B	ALUM	B
ABIQUA	B	ADLER	C	AKASKA	B	ALIKCHI	B	ALUSA	D
ABIQUA, FLOODED	C	ADMAN	D	AKELA	D	ALINE	A	ALVARADO	B
ABITA	C	ADDOBE	C	AKERCAN	B	ALKIPIDGE	C	ALVIN	B
ABO	C	ADOLPH	B/D	AKERUF	D	ALKO	D	ALVIRA	C
ABOR	D	ADOS	C	AKINA	E	ALLAGASH	B	ALVISO	D
ABORIGINE	D	ADRIAN	A/D	AKLEF	D	ALLAMORE	D	ALVODEST	D
ABOTEN	D	ADVOKAY	D	ALADDIN	B	ALLANTON	B/D	ALVOP	D
ABRA	S	AECET	C	ALACSHI	E	ALLANTON,	D	ALVOP, DRAINED	D
ABRAHAM	S	AENEAS	B	ALAE	A	DEPRESSIONAL		ALVOR, PROTECTED	C
ABRAZC	D	AFFEY	C	ALAELOA	E	ALLARD	B	ALWILDA	B
ABRAZO, GRAVELLY	C	AFLEY	B	ALAGA	A	ALLDOWN	B	ALYAN	B
ABREU	D	AFTADEN	D	ALAKAI	C	ALLEGHENY	B	ALZADA	D
ABRIGO	B	AFTON	C/D	ALAMA	B	ALLEMANDS	D	ALZOLA	C
ABSAPDKEE	C	AGA	B	ALAMADITAS	C	ALLEN	B	AMADOR	D
ABSCOTA	A	AGAIPAH	D	ALAMANCE	E	ALLENDALE	B	AMAGON	D
ABSHER	D	AGAN	D	ALAMBIOUE	E	ALLENDORF	B	AMALIA	B
ABSTED	C	AGAR	B	ALAMC	C	ALLENS PARK	B	AMALU	D
ABSTED, FLOODED	D	AGASSIZ	D	ALAMOGROD	F	ALLENS PARK, STONY	C	AMAKA	B
ABSTON	C	AGATE	C	ALAMOSA	D	ALLENTINE	D	AMANDA	C
ACACIO	B	AGATHA	E	ALAMOSA, DRAINED	E	ALLENWOOD	B	AMARILLO	B
ACADIFY	C	AGAWAM	E	ALAMUCHEE	F	ALLEY	B	AMASA	B
ACADIA	D	AGENCY	C	ALANGS	E	ALLHANDS	D	AMASA, MODERATELY	C
ACANA	D	AGER	D	ALAPAMA	D	ALLIANCE	B	WET, SANDY	
ACANOD	C	AGFAYAN	D	ALAPAJ	A	ALLIGATOR	D	SUPSTRATUM	
ACASCO	D	AGNAL	D	ALAZAN	E	ALLIS	D	AMBER	B
ACCELERATOR	B	AGNESTON	E	ALBAN	E	ALLISON	E	AMBIA	D
ACEITUNAS	B	AGNESTON, COBBLY	C	ALBANO	D	ALLKEP	E	AMBOAT	C
ACEL	C	SUBSTRATUM	C	ALBANY	C	ALLOR	B	AMBOY	C
ACHIPIN	C	AGNESTON, COBBLY	C	ALBATON	D	ALLOUEZ	B	AMBRANT	B
ACKEF	B	AGNESTON,	C	ALEE	C	ALMAC	B	AMBRAW	B/C
ACKERMAN	A/D	NONGRAVELLY		ALEEMARLE	B	ALMANDOR	E	AMELIA	C
ACKERVILLE	C	AGNEW	C	ALBERTON	B	ALMAVILLE	D	AMENE	D
ACKETT	D	AGNOS	D	ALBERTVILLE	C	ALMENA	C	AMENIA	B
ACKLEY	B	AGON	C	ALBINAS	B	ALMERIA	D	AMENSON	D
ACKMEN	R	AGORT	C	ALBION	B	ALMIFANTE	B	AMERICANOS	B
ACKNCRE	B	AGRA	C	ALFRIGHTS	C	ALMO	D	AMERICUS	A
ACKWATER	D	AGUA	E	ALFUZ	C	ALMONT	C	AMERY	B
ACME	C	AGUA DULCE	E	ALPURZ, DRAINED	B	ALMOTA	C	AMES	C/D
ACO	B	AGUA FRIA	C	ALBUS	B	ALMY	E	AMESHA	B
ACOMA	C	AGUA FRIA, HIGH	B	ALCAN	D	ALNITE	D	AMESMONT	C
ACORD	C	RAINFALL		ALCESTER	E	ALO	D	AMHERST	C
ACOVE	C	AGUA FRIA, STONY	D	ALCOA	B	ALOMA	C	AMISTAD	D
ACREDALE	D	AGUADILLA	A	ALCORA	E	ALOMAX	D	AMITY	D
ACREE	C	AGUALT	B	ALCOT	A	ALONA	B	AMMON	B
ACRELANE	C	AGUEDA	B	ALCOVA	F	ALONSO	B	AMCDAC	C
ACTON	B	AGUILARES	B	ALDA	C	ALOVAR	C	ANGLE	A
ACUFF	P	AGUILITA	B	ALDA, SALINE	B/D	ALPENA	A	AMOR	B
ACUNA	C	AGUIPPE	D	ALDAX	C	ALPHA	E	AMORUS	D
ACY	C	AGUSTIN	E	ALDEN	D	ALPIN	A	AMOS	C
ADA	C	AHART	C	ALDER	C	ALPON	E	AMOSTOWN	C
ADAIR	C	AHL	C	ALDERDALE	C	ALPOWA	E	AMPAD	C
ADAMS	A	AHLSTROM	D	ALDERPOND	E	ALRED	B	AMPHION	C
ADAMSON	B	AMNEEK	C	ALDERWOOD	C	ALROD	C	AMSDEN	B
ADAMSVILLE	C	AMOLT	D	ALDI	D	ALS	A	AMSTERDAM	B
ADATON	D	AHPAH	B	ALDINE	B	ALSCD	B	AMTOFT	D

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, F.C., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

AMWELL	C	ANSELMO, BEDROCK	A	ARCH	B	ARMYDRAIN	C	ASSUMPTION	B
AMY	D	SUBSTRATUM		ARCHABAL	B	ARNEGARD	B	ASTA	B
ANACAPA	B	ANSGAR	B/D	ARCHBOLD	A	ARNESS	D	ASTATULA	A
ANACOCO	D	ANSPING	B	ARCHFR	C	ARNHEIM	D	ASTOR	B/D
ANACONDA	B	ANT FLAT	C	ARCHEPDALE	C	ARNO	D	ASTOP, FLOODED	D
ANAEIM	C	ANTEL	B	ARCHES	D	ARNOLD	A	ASTORIA	B
ANAHUAC	D	ANTELOPE SPRINGS	C	ARCHIN	D	ARNOT	C/D	ATARQUE	D
ANAMITE	D	ANTERO	D	ARCHIN, COOL	C	ARNTZ	C	ATASCO	C
ANAPRA	B	ANTHO	B	ARCHULETA	D	AROL	D	ATASCOSA	D
ANASAZI	C	ANTHOLOP	D	ARCIA	C	AROSA	C	ATATE	B
ANATONE	D	ANTHONY	B	ARCLAY	D	ARP	C	ATCHEE	D
ANAUD	D	ANTI GO	B	ARCO	C	ARPADA	D	ATCO	B
ANAVERDE	B	ANTILON	C	ARCO, DRAINED	E	ARRASTRE	B	ATENCIO	B
ANAWALT	D	ANTIOCH	D	ARCOLA	C	ARREDONDO	A	ATEPIC	D
ANCHD	B	ANTLER	C	ARD	C	ARRIBA	C	ATHELMOLD	B
ANCHD, SALINE	C	ANTOINE	B	ARDENMONT	B	ARRINGTON	B	ATHENA	B
ANCHOR POINT	D	ANTONITO	C	ARCVENOIR	B	ARRICLA	D	ATHERTON	B/D
ANCHORAGE	A	ANTOSA	D	ARDEP	B	ARRITOLA	D	ATHOL	B
ANCLOTE	B/D	ANTROBUS	B	ARDEP, WET	C	ARRDLIME	C	ATKINS	D
ANCLOTE,	D	ANTWERP	C	ARDILLA	C	ARRON	D	ATKINSON	B
DEPRESSIONAL		ANTY	B	ARDIVEY	B	ARROWHEAD	C	ATLAS	D
ANCLOTE,	D	AMUNDE	E	ARDNAS	B	ARROYADA	D	ATLEE	C
FREQUENTLY		ANVIK	B	ARDTOD	B	ARROYO SECO	B	ATLOW	D
FLOODED		ANWAY	B	ARECIBO	A	ARSITE	D	ATMORE	B/D
ANCO	C	AOWA	B	AREDALE	B	ARTA	C	ATOKA	C
ANDERGEORGE	B	APACHE	D	ARENA	D	ARTESIA	D	ATOMIC	B
ANDERLY	C	APAKUIE	A	ARENA, DRAINED	C	ARTESIAN	D	ATRAC	D
ANDERS	C	APALACHEE	D	ARENALES	A	ARTNOC	B	ATRAVESADA	B
ANDERSON	B	APALO	B	ARENCTSVILLE	B	ARTCIS	C	ATRING	E
ANDOK	B	APAREJO	E	ARENOSA	A	ARUJO	B	ATRYPA	D
ANDOVER	D	APELDRN	D	ARENZVILLE	B	ARUNDEL	C	ATSIION	C/D
ANDRADA	D	APEX	B	ARGALT	D	APVA	D	ATSION, TIDE	D
ANDREESON	C	APISHAPA	D	ARGENT	D	ARVADA	D	FLOODED	
ANDREGG	B	APISON	B	ARGENTA	C	ARVANA	D	ATELLA	D
ANDRES	B	APMAT	B	ARGONAUT	D	ARVESON	B/D	ATTEP	A
ANDREWS	C	APMAY	D	AFGDRA	E	ARVILLA	A	ATTERBERRY	B
ANDRUSTIA	A	APOLLD	B	ARGYLE	E	ARVIN	B	ATTEWAN	B
ANDRY	D	APOPKA	A	ARIEL	C	ARZO	D	ATTEWAN, WET	D
ANDYS	B	APPANOOSE	D	APIKAPA	B	ASA	F	ATTICA	B
ANED	D	APPERSON	C	ARIMO	B	ASABEAN	B	ATTOYAC	B
ANELA	B	APPIAN	B	ARIPKA	C	ASBILL	D	ATWATER	B
ANETH	B	APPIAN,	C	ARIPINE	C	ASCALON	B	ATWELL	D
ANETH, DRY	A	SALINE-ALKALI		ARIS	D	ASCAR	C	ATWOOD	B
ANGELICA	B/D	APPIAN, WET	C	ARISPE	C	ASCHOFF	E	AU GRES	B
ANGELINA	D	APPIAN, RECLAIMED	C	ARIZO	A	ASH SPRINGS	C	AUA	B
ANGELO	C	APPLEBUSH	B	ARKABUTLA	C	ASHART	D	AUBARQUE	D
ANGELUS	B	APPLEDELLIA	C	ARKANA	C	ASHBON	D	AUBBEENAUBEE	B
ANGIE	D	APPLGATE	C	ARKAQUA	C	ASHCROFT	B	AUBERRY	B
ANGLE	A	APPLETON	C	ARKONA	E	ASHDALE	E	AUBREY	C
ANGLEN	C	APPLING	B	ARKPORT	B	ASHDOWN	B	AUBURN	D
ANGOLA	C	APRON	B	ARKSON	B	ASHE	B	AUBURNDALE	B/D
ANGORA	B	APT	B	ARKTON	B	ASHER	C	AUFCD	D
ANGOSTURA	B	APTAKISIC	E	ARLAND	E	ASHFORD	D	AUGGIE	B
ANHALT	D	APTOS	C	ARLE	C	ASHFORK	D	AUGSBURG	B/D
ANIAX	D	AQUILLA	A	ARLINGTON	C	ASHGROVE	C	AUGUSTA	C
ANIMAS	C	AQUINAS	C	ARLINGTON, THICK	B	ASHMURST	C	AUGUSTINE	B
ANINTO	D	ARABRAB	D	ARLUM	D	ASHIPPUM	C	AULD	D
ANITA	D	ARADA	R	ARLO	R	ASHKUM	B/D	AURA	B
ANKENY	B	ARAGON	C	ARLOVAL	A	ASHLAR	B	AURELIE	D
ANKLAM	D	ARAMBURU	C	ARPACH	D	ASHLEY	B	AURELIUS	B/D
ANKONA	D	ARANSAS	D	APMCO	C	ASHLD	B	AURORA	C
ANNABELLA	B	ARAPAHOE	B/D	APMELLS	E	ASHMED	E	AUSMUS	D
ANNANDALE	C	ARAPIEN	C	ARMENDARIS	C	ASHMUN	D	AUSTIN	C
ANNAV	B	ARARAT	B	APMENIA	D	ASHOLLER	D	AUSTINVILLE	B
ANNEMAIN	C	ARAT	D	ARMESA	B	ASHPORT	B	AUSTWELL	D
ANNIS	C	APAVAIPA	C	ARMESPAN	B	ASHTON	B	AUT	C
ANNIS, SALINE	B	ARAVE	D	ARMIESBURG	B	ASHUE	B	AUTONBA	B
ANNIS, DRAINED	B	ARAVETON	B	ARMIJO	D	ASHUELOT	D	AUTRYVILLE	A
ANNISQUAM	C	ARBELA	C	ARMINGTON	D	ASHWOOD	C	AUXVASSE	D
ANNISTON	B	ARBIDGE	C	ARMISTEAD	C	ASKEW	C	AUZOUJ	B
ANNONA	D	ARBOLES	C	ARMI TAGE	C	ASDLT	D	AVA	C
ANCON	C	ARBONE	B	ARMO	B	ASDTIN	C	AVALON	B
ANDKA	B	ARBOR	B	ARMCINE	D	ASPARAS	B	AVANT	B
ANDNES	C	ARBUCKLE	B	ARMDNA	C	ASPEN	B	AVAR	D
ANDWELL	D	ARBUCKLE, WET	C	ARMDUR	B	ASPERMONT	B	AVAWATZ	A
ANSARI	D	ARBURUA	C	ARMPUP	C	ASPERSON	C	AVENAL	B
ANSEL	B	ARBUS	B	ARMSTER	C	ASSATEAGUE	A	AVILLA	B
ANSELMO	B	ARCATA	B	ARMSTRONG	C	ASSININS	B	AVIS	A
		ARCETTE	B	ARMUCHEE	C	ASSINNIBOINE	B	AVOCA	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

AVOM	C	BALDFIELD	C	PARDLEY	C	BATESON	B	BEAVERTON	B
AVONBURG	D	BALDHILL	B	BARELA	C	BATESVILLE	C	BECKER	C
AVONDA	B	BALDNDUNTAIN	B	BARFIELD	D	BATH	C	BECKET	B
AVONDALE	B	BALDOCK	C	BARFUSS	B	BATTERSON	D	BECKLEY	C
AVONVILLE	B	BALDOCK, GRAVELLY	C	BARGE	C	BATTLE CREEK	C	BECKMAN	D
AVTABLE	D	SUBSTRATUM.		BARGER	C	BATTLEMENT	B	BECKS	C
AVBRIG	D	DRAINED		BARIO	B	BATZA	D	BECKTON	D
AXIS	D	BALDOCK, SALINE	C	BARISHMAN	C	BAUDETTE	E	BECKTON, WELL	C
AXTELL	D	BALDOCK, SALINE	C	BARPCAMP	E	BAUER	C	DRAINED	
AYAR	D	BALDOCK, DRAINED	C	BARKELEW	B	BAUMAN	B	BECKVILLE	B
AYCOCK	B	BALDWIN	D	BARKERVILLE	C	BAUMGARD	B	BECKWITH	D
AYDELOTTE	D	BALDY	B	BARKEY	C	BAUSCHER	E	BECKWORTH	C
AYERSVILLE	B	BALE	B	BARKEF	D	BAUX	B	BCRAFT	B
AYLMER	A	BALE, WET	D	BARLEYFIELD	E	BAUXSON	B	BECKREEK	B
AYNOR	B/D	BALLAMACK	D	BARLING	C	BAXENDALE	B	BEDELL	E
AYON	B	BALLARD	E	BARLOW	B	BAXTER	B	BEDEN	D
AYOUB	C	BALLER	D	BARNADE	C	BAXTERVILLE	B	BEDFORD	C
AYR	B	BALLINGER	D	BARNARD	C	BAYAMON	B	BEDINGTON	B
AYRES	D	BALLTOWN	D	BARNELLCREEK	B	BAYARD	B	BEDKE	B
AYRSHIRE	C	BALLVAR	B	BARNES	B	BAYBORD	D	BEDNER	C
AYSEES	B	BALLY	C	BARNESTON	B	BAYERTON	C	BEDSTEAD	C
AZAAR	C	BALM	D	BARNESTON.	A	BAYFIELD	C	BEDWYR	D
AZELTIME	B	BALMAN	B	NONGRAVELLY		BAYFIELD, WET	D	BEE	B
AZTALAN	C	BALMAN, SALINE.	C	BARNEY	D	BAYHORSE	D	BEEBE	A
AZTEC	B	FLOODED		BARNHARDT	B	BAYLIS	R	BEECHER	C
AZTEC, HIGH	C	BALMLAKE	B	BARNMOT	D	BAYMEADE	A	BEECHGROVE	C
RAINFALL		BALMORHEA	C	BARNSDALL	B	BAYOU	D	BEECHWOOD	C
AZULE	C	BALON	B	BARNSTABLE	B	BAYUDAN	D	BEEK	C
AZWELL	C	BALSORA	B	BARNUM	B	BAYSHORE	D	BEEKMAN	C
BAAMISH	B	BALTIC	D	BARODA	D	BAYSHORE.	B	BEELEM	D
BABB	B	BALTIMORE	B	BAROID	A	MODERATELY WET		BEELINE	D
BABBINGTON	B	BAMA	B	BAROID, WET	D	BAYSIDE	D	BEEOMONT	C
BABELTMAP	B	BAMAC	A	BARRADA	D	BAYTOWN	B	BEEONM	D
BACA	B	BAMBER	B	BARRE	D	BAYUCOS	D	BEEKOVE	B
BACA, FLOODED	C	BAMOS	C	BARRETT	D	BAYVI	D	BEEVILLE	B
BACH	B/D	BANTUSH	B	BARRIER	D	BAYVIEW	D	BEEZEE	B
BACHELOR	B	BANADERU	D	BARRINGTON	E	BAYWOOD	A	BEFAR	D
BACHO	D	BANAT	B	BARRON	B	BAZETTE	C	BEGAY	B
BACHUS	C	BANBURY	D	BARRONETT	E/D	BAZILE	B	BEHANIN	B
BACKBAY	D	BANCAS	C	BARRY	B/D	BEACH	D	BEHEMOTOSH	C
BACKBONE	B	BANCKER	D	BARSAC	C	BEAD	C	BEHRING	C
BACLIFF	D	BANCROFT	B	BARSHAAD	D	BEADLE	C	BEIGLE	B
BACDBI	C	BANCY	D	BART	B	BEALAND	B	BEIRMAN	D
BACONA	B	BANDAG	B	BARTINE	C	BEALES	B	BEISIGL	A
BADAXE	B	BANDERA	B	BARTLEY	D	BEAM	D	BEJE	D
BADENA	B	BANDID	B	BARTLEY	C	BEAMTON	C	BEJUCOS	B
BADENAUGH	B	BANDON	C	BARTO	D	BEANBLOSSOM	B	BELAIN	C
BADGE	B	BANE	A	BARTONE	D	BEANFLAT	C	BELEATE	B
BADGERTON	B	BANGO	B	BARTON	B	BEANLAKE	B	BELCHER	D
BADIN	C	BANGOR	B	BARTONFLAT	B	BEAND	D	BELDEN	C
BADITO	C	BANGSTON	A	BARVON	B	BEAR BASIN	E	BELDING	B
BADO	D	BANIDA	D	BARX	E	BEAR CREEK	B	BELLEN	D
BADUS	C/D	BANKARD	A	BASCAL	B	BEAR LAKE	B	BELFAST	B
BADWATER	B	BANKHEAD	B	BASCC	C	BEAR PRAIRIE	B	BELFIELD	C
BAGARD	B	BANKS	A	BASCOM	E	BEARDALL	C	BELFORD	E
BAGDAD	B	BANLIC	C	BASCOVY	D	BEARDEN	C	BELGARRA	C
BAGGOTT	D	BANNEL	B	BASEHOR	D	BEARDSLEY	C	BELGRADE	B
BAGLEY	B	BANNER	C	BASH	C	BEARDSTOWN	C	BELHAVEN	C
BAHEM	B	BANNING	C	BASHAW	D	BEARGULCH	B	BELINDA	D
BAHIA	A	BANNION	C	BASHER	B	BEARMOUTH	B	BELJICA	B
BAHL	C	BANNOCK	B	BASILE	D	BEARPAN	C	BELK	D
BAILE	D	BANTRY	A/D	BASIN	C	BEARSKIN	D	BELKNAP	C
BAILEGAP	B	BAPOS	D	BASINGER	E/D	BEARSPRING	B	BELLAVISTA	C
BAILEYCREEK	C	BARABOD	E	BASINGER.	D	BEARTRAP	B	BELLE	B
BAILING	C	BARAGA	C	DEPRESSIONAL		BEAPVILLE	C	BELLECHESTER	A
BAINVILLE	C	BARANA	B	BASINGER, FLOODED	D	BEARWALLOW	D	BELLEHELEN	D
BAIRD HOLLOW	C	BARATARI	A/D	BASKET	E	BEASLEY	C	BELLENINE	D
BAIRD HOLLOW,	D	BARBAROSA	D	BASSEL	E	BEASON	C	BELLEVILLE	B/D
EXTREMELY COBBLY		BARBARY	D	BASSETT	E	BEATRICE	D	BELLEVILLE, PONDED	D
BAIRD HOLLOW,	B	BARBERT	D	BASSFIELD	B	BEAUCOUP	B/D	BELLEVEU	B
GRAVELLY		BARBOUR	B	BASTIAN	C	BEAUFORD	B	BELLICUM	B
BAJURA	D	BARBOURVILLE	B	BASTON	C	BEAUGHTON	D	BELLINGHAM	D
BAKEOVEN	D	BARCAVE	B	BASTROP	B	BEAUMONT	D	BELLINGHAM,	C
BAKER	C	BARCE	B	BASTSIL	B	BEAUREGARD	C	DRAINED	
BAKERSVILLE	D	BARCLAY	C	BATA	B	BEAUSITE	C	BELLPASS	C
BALAAH	B	BARCO	B	BATAN	E	BEAUVAIS	B	BELLPINE	D
BALCOM	B	BARCUS	A	BATAVIA	B	BEAVERCREEK	C	BELLWOOD	D
BALD	C	BARDEMAN	D	BATEMAN	B	BEAVERDAM	B	BELWEAR	D
BALDER	D	BARDEN	C	BATES	B	BEAVERRELL	B	BELMILL	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

Exhibit A-1, continued: Hydrologic soil groups for United States soils

BELMONT	B	BERTRAM	B	BILLINGS.	B	BLACKNOLL	C	BLUE LAKE	A
BELMORE	B	BERTRAND	B	MODERATELY SLOW	B	BLACKOAR	B/D	BLUE STAR	B
BELPRE	C	BERVILLE	B/D	PERM		BLACKPIPE	C	BLUEBELL	C
BELSAC	B	BERVOLF	B	BILLYCREEK	B	BLACKPRINCE	B	BLUECHIEF	C
BELTED	D	BERYL	B	BILLYHAM	B	BLACKROCK	D	BLUECREEK	D
BELTON	C	BERZATIC	D	BILTMORE	D	BLACKSAN	A	BLUEDOME	C
BELTRAMI	B	BESEMAN	A/D	BIMMER	A/D	BLACKSPAR	D	BLUEFLAT	C
BELTSVILLE	C	BESHERM	C	PINCO	C	BLACKSPOT	D	BLUEGROVE	C
BELUGA	D	BESNER	B	BINDLE	B	BLACKSTON	E	BLUEGULCH	B
BELUGA, DRAINED.	C	BESSEMER	C	BINFORD	C	BLACKTHORN	B	BLUEHILL	B
SLOPING		BESSIE	D	BINGER	D	BLACKTOP	B	BLUEMON	C
BELVOIR	C	BESTROM	C	BINGHAM	C	BLACKWATER	B	BLUEJOINT	B
BELZAR	C	BETHANY	C	BINGHAMPTON	C	BLACKWELL	D	BLUENOSE	B
BEMIDJI	A	BETHEL	B	BINGHAMVILLE	B	BLADEN	D	BLUEPOINT	A
BEN LOMOND	B	BETHERA	D	BINNA	D	BLAG	D	BLUERIM	C
BENCHLEY	C	BETHESDA	C	BINNSVILLE	C	BLAGO	D	BLUESLIDE	D
BENCLARE	C	BETHLEHEM	B	BINS	B	BLAINE	B	BLUESPRIN	C
BENCO	B	BETIS	A	BINTON	A	BLAIR	C	BLUESTONE	D
BENDER	B	BETONNIE	B	BINTON, RECLAIMED	B	BLAIRTON	C	BLUEVING	A
BENDIRE	C	BETRA	C	BIOYA	C	BLAKABIN	B	BLUFF	D
BENEVOLA	C	PETTERAVIA	C	BIPPUS	C	BLAKE	B	BLUFFDALE	C
BENEVAM	D	BETTS	B	BIRCHBAY	B	BLAKELAND	C	BLUFFTON	C/D
BENFIELD	C	BEULAH	B	BIRCHFIELD	B	BLAKENEY	D	BLUFORD	C
BENGAL	C	BEVENT	A	BIRCHWOOD	C	BLAKEWELL	C	BLUM	C
BENGE	B	BEVERIDGE	D	BIRDOV	D	BLALOCK	B	BLV	B
BENHAM	B	BEVERLY	B	BIRDS	B	C/D BLAMER	C	BLVBURG	B
BENIN	D	BEVERLY, GRAVELLY	A	BIRDSALL	A	D BLANCA	D	BLVTHE	D
BENITO	D	BEW	C	BIRDSBORD	C	F BLANCHARD	F	BOARDMAN	D
BENJAMIN	D	BEWLEYVILLE	B	BIRDSLEY	B	D BLANCHE	D	BOARDTREE	C
BENKLIN	C	BEXAR	D	BIRDSVIEW	D	A BLANCHESTER	A	BOASH	D
BENMAN	C	BEZO	D	BIRKBECK	D	B BLANCOT	B	BOAZ	C
BENNDALE	B	BEZZANT	B	BIRMINGHAM	B	B BLAND	B	BOBBITT	C
BENNINGTON	C	BIBB	C	BIRNEY	C	B BLANDING	B	BOBBILLO	A
BENRIDGE	B	BIBLESPRINGS	B	BIROME	B	C BLANEY	C	BOBNBOB	C
BENSLEY	B	BICE	B	BISBEE	B	A BLANKET	A	BOBS	D
BENSON	D	BICKERDYKE	D	BISCARD	D	D BLANTON	D	BOBTAIL	C
BENTEEN	C	BICKETT	D	BISCAY	D	B/D BLANTON,	B/D	BOBTOWN	B
BENVY	B	BICKLETON	B	BISGANI,	B	B MODERATELY WET	B	BOCA	B/D
BENZ	D	BICKMORE	C	MODERATELY WET	C	BLANYON	C	BOCA, DEPRESSIONAL	D
BEOR	D	BICONDDA	D	BISGANI, FLOODED	D	C BLAPPERT	C	BOCA, TIDAL	D
BEOSKA	B	BICONDDA, DRAINED	C	BISHOP	C	D BLAQUIERE	D	BOCK	B
BEOTIA	B	BIDDEFORD	D	BISHARCK	D	D BLASDELL	D	BOCKER	B
BEOWAVE	B	BIDDLEMAN	B	BISOODI	D	D BLASE	C	BOCKSTON	B
BEQUINN	B	BIDMAN	C	BISPING	P	P BLASINGAME	P	BODE	B
BERCUMB	B	BIDWELL	B	BISSELL	B	B BLAYDEN	B	BODECKER	A
BERDA	B	BIEBER	D	BISSONNET	D	D BLAZBIRD	D	BODELL	D
BEREA	C	BIEDELL	D	BIT	D	C BLAZON	C	BODEN	C
BERENICETON	B	BIEDSAW	C	BITTER	C	B BLEAKWOOD	B	BODENBURG	B
BERGHOLZ	C	BIENVILLE	A	BITTER SPRING	A	B BLEDSOE	B	BODINE	B
BERGLAND	D	BIG BLUE	D	BITTERROOT	D	C BLEIBLERVILLE	C	BODORUMPE	C
BERGQUIST	B	BIG HORN	B	BITTERWATER	B	B BLENCOE	B	BODOT	C
BERGSTROM	B	BIG TIMBER	D	BITTON	D	B BLEND	B	BOEL	A
BERGSVIK	D	BIGARN	B	BIVANS	B	D BLENDON	D	BOEL, OVERWASH	C
BERINO	B	BIGBEE	A	BIXBY	B	B BLETHEN	B	BOELUS	A
BERIT	D	BIGBEND	B	BIXLER	B	C BLEVINS	C	BOERNE	B
BERKS	C	BIGBROWN	C	BJORK	C	C BLEVINTON	C	BOESEL	B
BERKSHIRE	B	BIGELOW	B	BLACHLY	B	B BLEWETT	B	BOESEL, PROTECTED	B
BERLAKE	B	BIGETTY	B	BLACK BUTTE	B	B BLICHTON	D	BOETTCHER	C
BERLIN	C	BIGFLAT	D	BLACK CANYON	D	D BLICKENSTAFF	D	BOGAN	C
BERMESA	C	BIGFOOT	C	BLACK CANYON,	C	C BLINO	C	BOGART	B
BERMUDIAN	B	BIGFORK	C	DRAINED	C	C BLINSTER	C	BOGGS	B
BERNAL	D	BIGHAMS	B	BLACK RIDGE	B	D BLINN	D	BOGGY	C
BERNALDD	B	BIGHILL	B	BLACKA	B	C BLISS	C	BOGRAP	B
BERNARD	D	BIGLAKE	A	BLACKBURN	A	B BLITZEN	B	BOGUE	D
BERNARDINO	C	BIGMEADOW	C	BLACKDRAW	C	D BLOCKHOUSE	D	BOGUS	C
BERNARDSTON	C	BIGNELL	C	BLACKETT	B	B BLOMFORD	B	BOHANNON	B/D
BERNHILL	B	BIGRIVER	B	BLACKFOOT	B	C BLOOM	C	BOHEMIAN	B
BERNICE	A	BIGSHEEP	B	BLACKFOOT, DRAINED	B	B BLOOMFIELD	B	BOHICKET	D
BERNING	C	BIGSPRING	D	BLACKHALL	D	D BLOOMING	D	BOHMA	B
BERNOW	B	BIGWIN	C	BLACKHALL, WARM	C	C BLOOMSDALE	C	BOHMLY	D
BERRYLAND	B/D	BIGWINDER	D	BLACKHAMMER	D	B BLOOR	B	BOHNSACK	B
BERRYMAN	C	BIGORJA	C	BLACKHANK	C	D BLOOR, GRAVELLY	D	BOISTFORT	B
BERSON	B	BIDU	B	BLACKHOOF	B	D SUBSTRATUM	D	BOJAC	B
BERTAG	C	BILBO	C	BLACKHORSE	C	C BLOUNT	C	BOJO	D
BERTELSON	B	BILGER	D	BLACKLEED	D	B BLOWERS	B	BOLAN	B
BERTHOUD	B	BILLET	B	BLACKLEG	C	C BLUCHER	C	BOLAR	B
BERTIE	B	BILLINGS	C	BLACKLOCK	C	D BLUE EARTH	D	BOLD	B
BERTO	D			BLACKMAN	C	C BLUE EARTH,	C	BOLENT	A
BERTOLOTTI	B			BLACKMOUNT	B	B SLOPING	B	BOLES	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTPATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

BOLFAR	C	BORGEAU	B	BRACEVILLE	C	BREW	C	BROKENHORN	D
BOLICKER	B	BORGES	D	BRACKEN	B	BREWER	C	BROLLIAR	D
BOLIO	D	BORIANA	D	BRACKETT	C	BREWLESS	C	BROMER	C
BOLIVAR	B	BORKY	C	BRAD	D	BREWSTER	D	BROWIDE	B
BOLLING	C	BORNSTEDT	C	BRADDOCK	B	BREWTON	C	BROWO	B
BOLSA	C	BORO	D	BRADEN	B	BRIBUTTE	D	BROWNAUGH	B
BOLTON	B	BOROBAY	C	BRADENTON	B/D	BRICKEL	C	BRONCHO	B
BOLTUS	D	BORREGO	D	BRADENTON, FLOODED	D	BRICKMILL	C	BRONCHO, LOAMY	A
BOMAR	C	BORREGUERO	C	BRADER	D	BRICKTON	C	SUBSTRATUM	
BOMBADIL	D	BORSKI	B	ERADSHAW	B	BRICO	C	BROWNELL	B
BOMBAY	B	BORTH	C	BRADSON	B	BRIDGE	C	BRONSON	B
BOMOSEEN	C	BORUP	B/D	BRADWAY	D	BRIDGE	C	BRONTE	C
BON	B	BORVANT	D	ERADY	B	BRIDGEMHAMPTON	B	BROOKE	D
BONAIR	D	BOSANKO	D	BRADYVILLE	C	BRIDGEPORT	B	BROOKFIELD	B
BONANZA	B	BOSCO	B	BRAFFITS	B	BRIDGER	B	BROOKINGS	B
BONAPARTE	A	BOSKET	B	BFAGG	C	BRIDGESON	D	BROOKLYN	C/D
BONCLAIR	B	BOSLER	B	BRAMAH	B	BRIDGESON, DRAINED	C	BROOKMAN	D
BOND	D	BOSD	D	BRAILSFORD	C	BRIDGET	B	BROOKSHIRE	C
BONDFARM	D	BOSQUE	B	BRAINERD	C	BRIDGEMATER	B	BROOKSIDE	C
BONDMAN	D	BOSSBURG	D	BRALLIER	D	BRIDWELL	B	BROOKSTON	B/D
BONDRANCH	D	BOSSBURG, DRAINED	C	BRAM	C	BPIEF	B	BROOKSTON, STONY	D
BONDUEL	C	BOSTON	C	BRAMARD	E	BRIER	D	BROOKSVILLE	D
BONE	D	BOSTRUM	D	BRAMLETT	C	BRIGGS	A	BROOME	B
BONEEK	B	BOSTWICK	B	BRAMWELL	C	BRIGGSDALE	C	BROPHY	A/D
BONEYARD	C	BOSVILLE	C	BRANCH	B	BRIGGSVILLE	C	BROSE	D
BONFIELD	B	BOSWELL	D	BRANCROFT	C	BRIGHTON	B/D	BROSELEY	B
BONFRI	C	BOSWORTH	D	BRAND	D	BRIGHTWOOD	B	BROSS	B
BONG	A	BOTELLA	B	BRANDBURG	A	BRILEY	B	BROUGHTON	D
BONHAM	C	BOTHWELL	B	BRANDON	B	BRILL	B	BROWARD	B
BONIFAY	A	BOTHWI	C	BRANDYWINE	C	BRIILLIANT	B	BROWER	B
BONILLA	B	BOTON	B	BRANFORD	B	BRIMFIELD	C/D	BROWNBEAR	C
BONITA	D	BOTTINEAU	C	BRANHAM	C	BRIMLEY	E	BROWNEDELL	D
BONJEA	D	BOTTLE	C	BRANSCOMB	B	BRIMSTONE	D	BROWNELL	B
BONN	D	BOTTLEROCK	C	BRANTFORD	B	BRINEGAR	E	BROWNFIELD	A
BONNEAU	A	BOULDER	B	BRANTLEY	C	BRINGMEE	C	BROWNLEE	B
BONNELL	C	BOULDER LAKE	D	BRANYON	D	BRINKER	B	BROWNTRIGG	D
BONNER	B	BOULDER POINT	E	BRASHEAR	C	BRINKERT	C	BROWNSCOMBE	C
BONNERDALE	B	BOULDERCREEK	B	BRASSFIELD	B	BRINKERTON	B	BROWNSCREEK	B
BONNET	B	BOULDIN	B	BRATTON	B	BRINNUM	D	BROWNSDALE	C
BONNEVILLE	A	BOULFLAT	C	BPAUN	C	BRINNUM, DRAINED	C	BROWNSTO	B
BONNICK	A	BOUNCER	D	BRAYANE	D	BRIDNES	B	BROWNSVILLE	C
BONNIE	C/D	BOUNDARY	B	BRAWLEY	D	BRIOS	A	BROWNTON	C/D
BONNIE, PONDED	C	BOURBON	B	BRAXTON	C	BRISBANE	B	BRUXON	B
BONNYDOON	D	BOURNE	C	BRAY	D	BRISCO	B	BRYLES	B
BONO	D	BOUSIC	D	BPAYTON	D	BRISCOT	D	BRUBECK	D
BONSALL	D	BOW	D	BRAZILTON	C	BRISCOT, DRAINED	C	BRUCE	B/D
BONTA	B	BOWBAC	C	BRAZITO	C	BRISKY	A	BRUELLA	B
BONTI	C	BOWBELLS	B	BRAZITO, THICK	B	BRISTOW	B	BRUELLA, HARD	C
BONWIER	C	BOWDISH	C	SURFACE		BRITTO	D	SUBSTRATUM	
BONWIER, GRADED	D	BOWDLE	B	BRAZITO, THICK	B	BRITTON	C	BRUFFY	B
BONZ	C	BOWDOIN	D	SURFACE,	D	BRITWATER	D	BRUHML	B
BODFORD	C	BOVDRE	C	SALINE-ALKALI	C	BROAD	C	BRUIN	B
BOOFUSS	D	BOVEN	C	BRAZON	C	BROAD CANYON	C	BRUMAN	B
BOOKCLIFF	B	BOWERS	C	BRAZORIA	D	BROADALBIN	B	BRUMBAUGH	C
BOOKER	D	BOWES	B	BRECKENRIDGE	B/D	BROADAX	B	BRUNCAN	D
BOOKOUT	C	BOWIE	B	BRECKNOCK	B	BROADBROOK	C	BRUNDAGE	D
BOOKWOOD	B	BOWLAK	C	BRECKSVILLE	C	BROADHEAD	C	BRUNEEL	D
BOOMER	B	BOWLUS	B	BREECE	B	BROADHURST	D	BRUNELDA	D
BOOMSTICK	D	BOWMAN	C	BREGAR	D	BROADMOOR	D	BRUND	A
BOOMTOWN	D	BOWMANSVILLE	B/D	BRIEN	E	BROADUS	B	BRUNSWICK	B
BODNE	A	BOWNS	C	BREKO	B	BROADWELL	B	BRUNZELL	B
BODNESBORD	B	BOWSTRING	A/D	BREMER	C	BROBETT	C	BRUSHCREEK	C
BOONEVILLE	B	BOXELDER	C	BREMER, SANDY	E	BROCK	D	BRUSHCREEK	B
BOONTON	C	BOXFORD	C	SUBSTRATJM		BROCKET	C	BRUSSELS	C
BOONVILLE	C	BOXVILLE	C	BREMO	C	BROCKGULCH	C	BRUSSETT	B
BOONVILLE	D	BOXWELL	C	BREMS	A	BRUCKLISS	B	BRVAN	A
BOOTH	C	BOY	B	BRENDA	C	BROCKMAN	C	BRYANT	B
BOOTHBAY	C	BOYCE	D	BRENHAM	C	BROCKO	B	BRYARLY	D
BOOTJACK	D	BOYD	D	BRENNAN	B	BROCKPORT	D	BRYCAN	B
BOOTS	A/D	BOYER	B	BRENNER	D	BROCKROAD	C	BRYCE	D
BOQUILLAS	C	BOYETT	B	BRENT	D	BROCKSBURG	B	BRYNAN	B
BORACHO	C	BOYKIN	B	BRENTON	E	BROCKTON	D	BRYSAL	B
BORAH	C	BOYLE	D	BRENTSVILLE	C	BROCKWAY	B	BUB	C
BORAVALL	D	BOYSAG	D	BRENTWOOD	B	BROCKWELL	B	BUBUS	B
BORDA	D	BOYSEN	D	BRESSA	C	BRODALE	C	BUCAN	C
BORDEAUX	B	BOZE	B	BRESSER	B	BRODY	C	BUCAN, GRAVELLY	D
BORDEN	B	BOZEMAN	B	BREYARD	B	BROE	B	BUCANAN	C
BORDER	B	BRABAS	D	BREVATOR	C	BROGAN	B	BUCHEL	D
BOREALIS	D	BRACE	C	BREVORT	B/D	BROGDM	B	BUCHENAU	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

BUCHENAU, THICK	B	BURCHELL	C	CARD ROJO	C	CALODD	C	CANTEEN	B
SOLUM		BURDETT	C	CARDOSE	B	CALDOOSA	C	CANTEY	D
BUCKAROD	C	BUREN	C	CABOT	D	CALDOUSE	B	CANTINA	C
BUCKBAY	C	BURGESS	C	CABRILLO	C	CALPAC	B	CANTON	B
BUCKCREEK	C	BURGI	B	CABSTON	B	CALPEAK	D	CANTON BEND	C
BUCKEYE	C	BURIBURI	C	CACHE	D	CALPINE	B	CANTRIL	B
BUCKHALL	B	BURKE	C	CACIGUE	C	CALROY	B	CANTUA	B
BUCKHOUSE	B	BURKETOWN	C	CACTUSFLAT	C	CALUME	B	CANTUCHE	D
BUCKING	A	BURKEYVILLE	D	CADIO	D	CALVERTON	C	CANUTID	B
BUCKLAKE	C	BURKHARDT	B	CADEVILLE	D	CALVIN	C	CANWALL	C
BUCKLAND	C	BURLEIGH	A/D	CADILLAC	A	CALVISTA	D	CANYON	D
BUCKLE	B	BURLESON	D	CADIZ	B	CALWOODS	D	CAPAC	C
BUCKLEBAR	B	BURLEWASH	D	CADMUS	B	CALZACORTA	D	CAPAY	C
BUCKLEY	D	BURLINGTON	A	CADDMA	D	CAMAGUEY	D	CAPE	D
BUCKLICK	C	BURMAH	D	CAESAR	A	CAMARGO	B	CAPE FEAR	D
BUCKLICK, THICK	B	BURNAC	D	CAGEY	C	CAMARILLO	C	CAPEHORN	D
SOLUM		BURNBOROUGH	B	CACLE	C	CAMARILLO, DRAINED	B	CAPERS	D
BUCKLON	D	BURNEL	C	CAGUABD	D	CAMAS	A	CAPERION	B
BUCKNELL	D	BURNETTE	C	CAGWIN	B	CAMAS, STONY	B	CAPHOR	B
BUCKNEY	B	BURNHAM	D	CAGABA	B	CAMATTA	D	CAPILLO	C
BUCKPEAK	B	BURNSIDE	B	CAHDNA	B	CAMBARGE	B	CAPISTRAND	B
BUCKS	B	BURNSVILLE	B	CAID	B	CAMBERN	C	CAPITAN	D
BUCKSHOT	B	BURNSWICK	B	CAINHOY	A	CAMBERT	C	CAPJAC	C
BUCKSKIN	C	BURNY LAKE	A	CAIRC	D	CAMBETH	C	CAFLEN	D
BUCKTON	B	BURNTRIVER	B	CAJALCO	C	CAMBRIA	B	CAPLES	D
BUDE	C	BURR	D	CAJETE	B	CAMBRIDGE	C	CAPLES, DRAINED	C
BUDIMOL	D	BURRITA	D	CAJON, OVERWASH	A	CAMDEN	B	CAPONA	D
BUDLEWIS	C	BURROSVILLE	C	CAJON, LOAMY	A	CAMEEK	D	CAPOOSE	C
BUELL	B	BURSLEY	D	SUBSTRATUM		CAMELBACK	B	CAPPS	B
BUENA VISTA	B	BURSON	C	CAJON, SILTY	A	CAMEO	B	CAPSHAW	C
BUFFARAN	D	BUPT	D	SUBSTRATUM		CAMERON	D	CAPTINA	C
BUFFCREEK	B	BURTON	B	CAJON, ALKALI,	A	CAMILLUS	B	CAPTIVA	B/D
BUFFINGTON	B	BURWELL	C	EVERWASH		CAMINO	C	CAPULIN	B
BUFFMEYER	B	BUSBY	B	CAJON,	B	CAMPANA	B	CARACOLES	D
BUFFORK	C	BUSE	B	SALINE-ALKALI		CAMPBELL, MUCK	C	CARADAN	D
BUFFON	C	BUSHER	B	CAJON, COOL,	A	SUBSTRATUM		CARALAMPI	B
BUMRIG	C	BUSHMAN	B	OVERWASH		CAMPBELL, DRAINED	B	CARBENGLE	B
BUICK	C	BUSHMELL	C	CAJON, GRAVELLY	A	CAMPBELLTON	C	CARRO	C
BUIST	B	BUSHVALLEY	D	CAJON, COOL	A	CAMP CREEK	C	CARBOL	D
BUKO	B	BUSKA	B	CAJON, WARM	A	CAMPIA	B	CARPONA	D
BUKO, WET	C	BUSSY	C	CALAPAR	D	CAMPO	C	CARBONDALE	A/D
BUKREEK	B	BUSTER	B	CALAPASAS	B	CAMPONE	C	CARCITY	D
BULAKE	D	BUSTI	C	CALAPINE	D	CAMPSPASS	B	CARDENAS	D
BULKLEY	C	BUSWILD	B	CALAWITY	D	CAMPUS	B	CARDIFF	B
BULL RUN	B	BUTANO	C	CALAMUS	A	CAMRODEN	C	CARDIGAN	B
BULL RUN, HARDPAN	C	BUTCHE	D	CALAYERAS	B	CANA	C	CARDINGTON	C
SUBSTRATUM		BUTLER	D	CALAWAH	B	CANAAN	C	CAPDON	D
BULL TRAIL	B	BUTLERTOWN	C	CALCO	B/D	CANADIAN	B	CAREFREE	D
BULLARDS	B	BUTTERFIELD	C	CALCOUSTA	B/D	CANADICE	D	CAREY	B
BULLCREEK	D	BUTTERMILK	B	CALCROSS	B	CANALOU	B	CAREY LAKE	B
BULLFLAT	B	BUTTERS	B	CALD	C	CANANDAIGUA	D	CARGENT	B
BULLFOR	C	EUTTON	D	CALDER	D	CANASERAGA	C	CARGILL	C
BULLION	D	EUTTONHOOK	B	CALDERWOOD	D	CANAYERAL	C	CARIBEL	B
BULLNEL	C	EUTTONWILLOW	C	CALDWELL	C	CANBURN	D	CARIBOU	B
BULLOCK	D	EUXIN	D	CALDWELL, DRAINED	B	CANDELARIA	B	CARIOCA	B
BULLREY	B	EUXTON, SOMEWHAT	D	CALE	B	CANDELERO	C	CARIS	C
BULLLUMP	B	POORLY DRAINED		CALEAST	C	CANDERLY	B	CARJO	C
BULLVARD	B	EUXTON, STONY	C	CALEP	B	CANDLER	A	CARLIN	D
BULLWINKLE	D	BUXTON, MODERATELY	C	CALEPONIA	B	CANDLESTICK	C	CARLINTON	C
BULLY	B	WELL DRAINED		CALENDAR	C	CANDOR	A	CARLISLE	A/D
BULOW	A	BUZZ	A	CALERA	C	CANE	C	CARLITO	D
SUNCOMBE	A	BYARS	D	CALMI	A	CANEADEA	D	CARLOS	A/D
BUNDO	B	BYBEE	D	CALHOUN	D	CANEAK	B	CARLOTTA	B
BUNDORF	D	BYINGTON	C	CALICO	C	CANELO	D	CARLOW	D
BUNDY	C	BYLER	C	CALICOTT	A	CANEST	D	CARLSBAD	C
BUNDYMAN	C	RYLO	B	CALIFON	C	CANEYVILLE	C	CARLSBERG	A
BUNEJUG	C	BYNUM	C	CALIMUS	B	CANEZ	B	CARLSON	B
BUNKER	B	BYRAK	C	CALITA	B	CANFIELD	B	CARLSTROM	C
BUNKERHILL	D	BYRNIE	D	CALIZA	B	CANISTED	B/D	CARLTON	C
BUNKWATER	C	CABALLO	B	CALKINS	C	CANISTED, STONY	D	CARNACK	B
BUNKY	C	CASARTON	D	CALLARD	C	CANIVE	B	CARNEI	C
BUNNELL	B	CASBA	D	CALLAHAN	D	CANLON	D	CARMI	B
BUNSELMEIER	B	CABBART	C	CALLAN	C	CANNELL	B	CARMICHAEL	C
BUNTINGVILLE	C	CASBART, STONY	D	CALLEGUAS	D	CANNING	B	CARMODY	C
BUNYAN	B	CASBART, WARM	D	CALLINGS	C	CANNON	B	CARNASAV	C
BURBANK	A	CABEZON	D	CALLISBURG	C	CANNONVILLE	D	CARNEGIE	C
BURCH	B	CABIN	B	CALLONAY	C	CANDE	B	CARNERD	C
BURCHAM	B	CABINET	C	CALMAR	B	CANOA	B/D	CARNEY	D
BURCHARD	B	CABLE	B/D	CALNEVA	C	CANTALA	B	CAROLINE	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

CAROLLO	D	CATALPA	C	CENCOVE	B	CHARLOTTE	B/D	CHEWACLA	C
CARON	A/D	CATAMOUNT	D	CENIZA	B	CHARLTON	B	CHEWELAH	C
CARON, MARSHY	D	CATAND	A	CENTENARY	A	CHARNOCK	C	CHEYENNE	B
CARPENTER	B	CATARACT	B	CENTER	C	CHARNOCK,	B	CHIA	D
CARR	B	CATAPINA	D	CENTER CREEK	C	MODERATELY WET		CHIARA	D
CARRACAS	D	CATASKA	D	CENTERBURG	C	CHARD	C	CHICANE	C
CARRANZA	B	CATAULA	B	CENTERFIELD	F	CHASE	C	CHICHANTNA	D
CARRCREEK	B	CATCHELL	C	CENTERVILLE	D	CHASEBURG	B	CHICKAHOMINY	D
CARRIZALES	A	CATELLI	B	CENTISSIMA	B	CHASEVILLE	A	CHICKAMAN	B
CARRIZO	A	CATERL	E	CENTRAL POINT	B	CHASKA	B/D	CHICKASAW	C
CARROLLS	D	CATH	C	CENTRALIA	B	CHASTAIN	D	CHICKASHA	B
CARRYBACK	C	CATHARPIN	C	CENTRALPEAK	C	CHATBURN	B	CHICKCREEK	D
CARSITAS	A	CATHAY	C	CEPBAT	D	CHATCOLET	B	CHICOLETE	C
CARSITAS, WET	B	CATHCART	B	CERESCO	B	CHATEAU	D	CHICOTE	D
CARSON	D	CATHEDRAL	D	CERINI	E	CHATFIELD	B	CHIEFLAND	B
CARSTAIRS	A	CATHEEN	B	CERINI, ALKALI	C	CHATHAM	B	CHIGLEY	C
CARSTUMP	C	CATHERINE	C	CERLIN	C	CHATSWORTH	D	CHIKAMIN	C
CART	E	CATHLANET	R	CERRILLOS	R	CHATT	C	CHILAD	C
CARTAGENA	D	CATHRD	A/D	CERRC	C	CHATUGE	D	CHILCOTT	C
CARTECAY	C	CATILLA	B	CESTNIK	C	CHAUMONT	D	CHILCOTT, GRAVELLY	D
CARTER	D	CATLA	D	CETRACK	B	CHAUNCEY	C	CHILCOTT, COOL	D
CARTERET	D	CATLETT	C/D	CHACHA	C	CHAUTAQUA	C	CHILDS	B
CARTHAGE	B	CATLIN	B	CHACON	C	CHAVIES	B	CHILGREN	C
CARUSO	C	CATHAN	D	CHAD	C	CHAVANAKEE	C	CHILHOWIE	C
CARUTHERSVILLE	B	CATNIP	D	CHAFFEE	D	CHAYSON	C	CHILI	B
CARVER	A	CATOCTIN	C	CHAGFIN	E	CHAZOS	C	CHILICOTAL	B
CARVILLE	D	CATODSA	B	CHAIN	C	CHEADLE	D	CHILKOOT	D
CARYTOWN	D	CATPOINT	A	CHAIRIS	E/D	CHEANA	D	CHILL	D
CARYVILLE	B	CATTCREEK	R	CHAIRIS,	D	CHEBOYGAN	B	CHILLUM	B
CASA GRANDE	C	CATTCREEK,	A	DEPRESSIONAL		CHECH	D	CHILMARK	C
CASABONNE	B	GRAVELLY		CHAIK	B	CHECKER	C	CHILLOQUIN	D
CASAGA	C	SUBSTRATUM		CHALCO	D	CHECKETT	D	CHILPEP	D
CASCADE	C	CATTO	D	CHALFONT	C	CHEDATNA	B	CHILSON	D
CASCAJO	A	CAUDLE	C	CHALKCREEK	F	CHEDEMAP	B	CHILTON	B
CASCAJO, COBBLY	B	CAUSEWA	C	CHALMERS	B/D	CHEDESKI	B	CHINAYO	D
CASCILLA	B	CAUSEY	B	CHAMA, MODERATELY	B	CHEDESEY	C	CHIME	C
CASCO	B	CAVAL	B	SLOW PERM		CHEEBE	D	CHIMENEA	D
CASE	B	CAVANAUGH	C	CHAMA, MODERATE	F	CHEEKTOWAGA	D	CHIMNEY	A
CASEY	D	CAVE	D	PERMEABILITY		CHEESEMAN	B	CHINAPDINT	D
CASHEL	C	CAVEGULCH	B	CHAMA, COOL	C	CHEHALE	C	CHINCAP	D
CASHIERS	B	CAVEHILL	C	CHAMATE	B	CHEHALIS	B	CHINCHALLO	D
CASHION	D	CAVELT	D	CHAMBEAM	E	CHEHULPUM	D	CHINCOTEAGUE	D
CASHMERE	B	CAVDENISH	B	CHAMBERINO	C	CHELAN	B	CHINEN	D
CASHMONT	B	CAVO	D	CHAMBERLAIN	B	CHELSEA	A	CHINIAC	A
CASITC	D	CAVODE	C	CHAMISE	D	CHEMAYA	B	CHIND	C
CASLO	D	CAVOUR	D	CHAMPKANE	C	CHEN	D	CHIND, DRAINED	B
CASLO, MODERATELY	C	CAYA	D	CHAMPAGNE	B	CHENA	A	CHINDOK	B
NET		CAYAGUA	C	CHAMPION	B	CHENANGO	A	CHINVAR	C
CASMOS	D	CAYTON	C	CHANAC	B	CHENAULT	B	CHIPENDALE	D
CASPAR	B	CAYUGA	C	CHANCE	D	CHENEGA	A	CHIPENHILL	D
CASPIANA	B	CAYUSE	B	CHANCELLOR	C	CHENEY	B	CHIPETA	D
CASS	B	CAZADERO	C	CHANDLER	B	CHENNEBY	C	CHIPLEY	C
CASSIA	C	CAZADOR	B	CHANEY	C	CHENOWETH	B	CHIPMAN,	D
CASSIA, MODERATELY	B	CAZENOVIA	B	CHANNAMON	D	CHEOAH	B	SALINE-ALKALI	
WELL DRAINED		CEBOLIA	C	CHANNING	R	CHEQUEST	C	CHIPMAN,	C
CASSIRO	B	CEROLLETA	C	CHANTA	F	CHERIONI	D	MODERATELY WET	
CASSIRO, STONY	C	CEBONE	C	CHANTIER	D	CHERCKEE	D	CHIPMAN, DRAINED	A
CASSOLAPY	C	CEBOYA	C	CHAPANOKE	C	CERRY	C	CHIPOLA	D
CASTAIC	C	CECIL	B	CHAPERTON	C	CERRY, CALCAREOUS	B	CHIPPENY	D
CASTALIA	C	CEDA	B	CHAPIN	C	CERRY, COOL	B	CHIPPENWA	D
CASTANA	R	CEDAR BUTTE	D	CHAPMAN	B	CERRY SPRING	C	CHIRENO	D
CASTELL	C	CEDAR MOUNTAIN	D	CHAPDT	B	CERRYHILL	B	CHIRICAHUA	D
CASTELLEIA	B	CEDARAN	D	CHAPPELL	A	CHERUM	B	CHIRPCHATTER	B
CASTELLO	B	CEDARBLUFF	C	CHAPPUIS	C	CHESAM	A	CHISCA	D
CASTEPHEN	C	CEDARCREEK	C	CHADUA	B	CHESHIRE	B	CHISMORE	D
CASTILE	B	CEDARFALLS	A	CHAPCC	C	CHESHMINA	C	CHISOLM	A
CASTINO	C	CEDARGAP	B	CHAPCOL	B	CHESHMINUS	B	CHISPA	B
CASTINO, NONSTONY	D	CEDAPHILL	B	CHARC	B	CHESTATEE	B	CHISTOCHINA	B
CASTLE	D	CEDARPASS	B	CHARDOTON	C	CHESTER	B	CHITINA	C
CASTLEVALE	D	CEDONIA	B	CHARPETTE	C	CHESTERTON	D	CHITUM	D
CASNER	D	CEEK	B	CHARGO	C	CHESTNUT	B	CHITWOOD	D
CASTO	C	CELACY	C	CHARITON	C	CHESTONIA	C	CHIVATO	C
CASTON	B	CELESTE	D	CHARLEBOIS	B	CHEUNCOOK	C	CHIVAUKUM	B
CASTRO	D	CELETON	D	CHARLEBOIS, WET	C	CHETCO	D	CHIVAWA	B
CASTROVILLE	B	CELINA	C	CHARLES	C	CHETEK	B	CHD	C
CASUSE	D	CELIO	C	CHARLESTON	C	CHETWYND	B	CHDATES	C
CASVARE	D	CELLAR	D	CHARLEVOIX	B	CHEVAL	C	CHOBEE	B/D
CASWELL	B	CELSOSPRINGS	C	CHARLOS	E	CHEVELON	C	CHOBEE,	D
CATALINA	B	CEMBER	C	CHARLOS, WET	D	CHEVIDT	B	DEPRESSIONAL	

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

CHOBEE, LIMESTONE SUBSTRATUM	D	CLALLAM	C	CLIPPER	D	COKEL	B	COLVIN, OVERBLOWN.	C
CHOCOCLOCCO	B	CLAM GULCH	D	CLIPPER, DRAINED	C	COKER	D	SALINE	B
CHOCK	D	CLAMO	C/D	CLODINE	D	COKESBURY	D	COLWOOD	B/D
CHOCORUA	D	CLAMP	D	CLONTARF	B	COKEYVILLE	B	COLY	B
CHOICE	D	CLANA	A	CLOQUALLUM	C	COLAND	B/D	COLYER	D
CHOOP	D	CLANALPINE	C	CLOQUATO	B	COLBAR	C	COMAD	A
CHOPTIE	D	CLANTON	C	CLOQUET	B	COLBERT	D	COMAR	C
CHORALMONT	B	CLAPPER	B	CLOSKEY	C	COLBURN	C	COMBE	B
CHOSKA	B	CLAREMORE	D	CLOTHO	C/D	COLBY	B	COMBS	B
CHOTEAU	C	CLARENCE	D	CLOUD PEAK	C	COLD CREEK	B	COMER	B
CHOVAN	D	CLARENDON	C	CLOUD RIM	B	COLDENT	C	COMETA	D
CHRIS	C	CLARESON	C	CLOUDCROFT	D	COLLE	C	COMFORT	D
CHRISMAN	D	CLAREVILLE	C	CLOUDLAND	C	COLEMAN	C	COMFREY	B/D
CHRISTIAN	C	CLARINDA	D	CLOUGH	D	COLEMANTOWN	C/D	COMFREY, PONDED	D
CHRISTIANA	C	CLARION	B	CLOVELLY	D	COLESTINE	C	COMITAS	A
CHRISTIANBURG	C	CLARITA	D	CLOVER SPRINGS	B	COLFAX	C	COMLY	C
CHRISTINE	D	CLARK	B	CLOVERDALE	D	COLHILL	B	COMMERCE	C
CHRISTOFF	C	CLARK FORK	A	CLOVERLAND	C	COLIBFO	B	COMMSKI	B
CHRISTY	C	CLARKELEN	B	CLOVIS	B	COLINAS	B	COMO	A
CHRODER	B	CLARKRANGE	C	CLOWERS	C	COLITA	D	COMOPAI	D
CHROME	C	CLARKSBURG	C	CLOWERS, WET	C	COLLAMER	C	COMODORE	D
CHRYSLER	C	CLARKSDALE	C	CLOWFIN	B	COLLARD	E	COMORD	B
CHUALAR	B	CLARKSVILLE	B	CLUFF	C	COLLAYOMI	B	COMPASS	B
CHUBBS	C	CLARNO	B	CLUNIE	B	COLLBRAN	D	COMPTCHE	B
CHUCKANUT	B	CLATO	B	CLURDE	B	COLLBRAN, COBBLY	C	COMSTOCK	C
CHUCKAWALLA	B	CLATSOP	D	CLURO	B	COLLEGEDALE	C	COMUS	C
CHUCKLES	B	CLAUNCH	B	CLYDE	B/D	COLLEGIATE	D	CONA	C
CHUCKRIDGE	D	CLAVERACK	C	CLYMER	B	COLLETT	B	CONABY	B/D
CHUGCREEK	C	CLAVICON	C	COACHELLA	B	COLLETT, DRAINED	C	CONALB	B
CHUGTER	B	CLAWSON	C	COACHELLA, WET	C	COLLIER	A	CONANT	C
CHUIT	B	CLAYBURN	B	COAHUILA	B	COLLINGTON	B	CONASAUCA	C
CHULITNA	B	CLAYSOP	D	COAL CREEK	D	COLLINS	C	CONATA	D
CHUMALL	B	CLAYTON	B	COALBANK	B	COLLINSTON	B	CONBOY	D
CHUMMY	D	CLE ELUM	C	COALDALE	D	COLLINSVILLE	D	CONCEPCION	D
CHUMSTICK	D	CLEAR LAKE	D	COALDRAW	D	COLLINWOOD	C	CONCHAS	C
CHUPADERA	C	CLEAR LAKE, STRATIFIED	C	COALMONT	C	COLMA	B	CONCHO	C
CHURCH	D	CLAYBURN	B	COAMO	C	COLMOR	B	CONCONULLY	B
CHURCHILL	D	CLAYSOP	D	COARSEGOLD	C	COLNEVEE	B	CONCORD	D
CHURCHVILLE	D	CLAYSPRINGS	B	COATSBURG	C	COLO	B/D	CONDA	D
CHURN	B	CLAYVILLE	D	COBAT	B	COLO, DRAINED	B	CONDIE	B
CHUSKA	D	CLEARBROOK	D	CCRATUS	C	COLO, NONFLOODED	B	CONDIT	D
CHUTE	A	CLEARFIELD	C	COBB	B	COLOCKUM	B	CONDCN	C
CIALES	D	CLEARFORK	D	COBBSFORK	D	COLOMA	A	CONE	A
CIBOQUE	B	CLEARWATER	D	COBEN	D	COLOMBO	B	CONECUM	D
CIBO	D	CLEAVAGE	D	COBRY	E	COLONA	C	CONEJO	B
CIBOLA	B	CLEAVER	D	COBLE	D	COLONIE	A	CONEJO, WET	C
CID	C	CLEAVMOR	D	COBDC	C	COLONVILLE	C	CONEJO, GRAVELLY	C
CIDRAL	C	CLEBIT	D	COBPE	D	COLORADO	B	SUBSTRATUM	
CIENEGA	C	CLEGG	B	COBURG	C	COLOROCK	D	CONESTOGA	B
CIENO	D	CLEGHORN	C	COCHETOPA	C	COLOROW	B	CONESUS	B
CIERVO, ALKALI	D	CLEMAN	B	COCHINA	D	COLOSO	D	CONETOE	A
CIERVO, ALKALI, WET	D	CLEMENINE	C	COCHITI	C	COLOSSE	A	CONGAREE	B
CIERVO, RECLAIMED	C	CLEMENTINE, DRAINED	B	COCHPAN	C	COLP	C	CONGER	C
CIFIC	C	CLEMS	B	COCCA	A	COLRAIN	B	CONGER, COBELY	D
CIMARRON	C	CLEMMING	B	COCDRIE	C	COLSAVAGE	C	SUBSTRATUM	
CININNATI	C	CLEMVILLE	B	COCOLALLA	D	COLTER	B	CONGLE	B
CINCO	A	CLENDENEN	D	COCOLALLA, DRAINED	C	COLTHORP	D	CONI	D
CINDERHURST	D	CLEONE	B	COCLAY	B	COLTON	A	CONIC	C
CINEBAR	B	CLEORA	B	COCDORUS	C	COLTROOP	D	CONLEN	B
CINNADALE	D	CLERF	C	COCDQUIN	D	COLTS NECK	B	CONLEY	C
CINNAMON	B	CLERGERN	B	COCDYLAKE	B	COLUMBIA, MUCK	B	CONNEAUT	C
CINTRONA	D	CLERMONT	D	COE	A	SUBSTRATUM		CONNEL	B
CIPRIANO	D	CLEVELAND	C	COERGCK	D	COLUMBIA, DRAINED	B	CONNERTON	B
CIRAC	B	CLEVERLY	B	COESSE	C/D	CLAY SUBSTRATUM	C	CONOSTA	C
CIRCLEBACK	A	CLICK	A	COFF	C	COLUMBIA, MODERATELY WET	B	CONOTTON	B
CIRCLEBAR	C	CLIFFDELL	B	COFFEEN	B	COLUMBIA, DRAINED	B	CONOVER	C
CIRCLEVILLE	C	CLIFFDOWN	B	COGGON	B	COLUMBIA, FLOODED	C	CONOWINGO	C
CISCO	B	CLIFFHOUSE	C	COGNA	B	COLUMBIA, CLAY	C	CONPEAK	D
CISNE	D	CLIFFORD	C	COGSWELL	C	SUBSTRATUM		CONRAD	A/D
CISPUS	B	CLIFFSAND	B	COHAGEN	B	COLUMBIA, SLOPING	B	CONROE	B
CITADEL	C	CLIFTERSON	B	COHASSET	B	COLUMBINE	A	CONSEJO	C
CITICO	B	CLIFTON	B	COHCTAH	B/D	COLUMBINE	B	CONSER	D
CITRONELLE	D	CLIFTY	B	COHCTAH, SANDY	D	COLUMBUS	C	CONSTABLE	A
CLACKAMAS	D	CLIMARA	D	SUBSTRATUM		COLUSA	C	CONSTANCIA	D
CLAIBORNE	B	CLIMAX	D	COHOE	B	COLVARD	B	CONSUMO	B
CLAIRE	A	CLIME	C	COILS	C	COLVILLE	D	CONTACT	A
CLAIREMONT	B	CLINETOP	D	COIT	D	COLVILLE, DRAINED	C	CONTEE	D
		CLINT	C	COKEDALE	D	COLVIN	C/D	CONTIDE	B
		CLINTON	B	COKEDALE, DRAINED	C	COLVIN, SALINE	C	CONTINE	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

CONTINENTAL	C	CORRALITOS, SILTY	B	COVERS	B	CREVA	D	CUBCREEK	B
CONTO	B	SUBSTRATUM		COMESTGLEN	B	CREVASSE	A	CUBERANT	B
CONTRA COSTA	C	CORRECO	C	COVETA	C	CREVISCREEK	C	CUCAMUNGO	D
CONTRARY	B	CORRIGAN	D	COVGIL	B	CREWS	D	CUCHILLAS	C
CONVENT	C	CORSON	C	COWHORN	B	CRIDER	B	CUCMO	C
COOERS	B	CORTA	D	COWICHE	D	CRIMS	D	CUDAHY	D
COOK	D	CORTADA	B	COWLAKE	B	CRINKER	C	CUDAHY, DRAINED	C
COOKPORT	C	CORTEZ	D	COWLITZ	A	CRIPPIN	E	CUDEBACK	C
COOLBRITH	C	CORTINA	B	COWOOD	D	CRISFIELD	B	CUERDA	C
COOLIDGE	B	CORTINA, THIN	A	COWSLY	C	CRISTO	C	CUERO	B
COOLVILLE	C	SURFACE		COWTON	C	CRISTO, LOAMY	C	CUERVO	C
COOMBS	B	CORUNNA	B/D	COX	D	CRISTORAL	D	CUESTA	C
COONSKIN	C	CORVIN	B	COXLAKE	D	CRITCHELL	B	CUEVA	D
COOPER	B	CORWITH	B	COXVILLE	D	CRITTENDEN	B	CUEVITAS	D
COOSAW	B	CORY	C	COXWELL	C	CROATAN	D	CUEVOLLAND	B
COOTER	C	CORYDON	D	COY	D	CROCKER	A	CULBERTSON	B
COPAKE	B	COSAD	C	COYANOSA	D	CROCKETT	D	CULDESAC	B
COPALIS	C	COSER	D	COYATA	C	CROESUS	C	CULLEN	C
COPANO	D	COSEY	B	COYET	A	CROFTON	B	CULLEOKA	B
COPASTON	D	COSH	C	COYLE	B	CROGHAN	B	CULP	C
COPELAND	B/D	COSMOCTON	C	COYNE	B	CROKE	B	CULPEPER	C
COPELAND,	D	COSKI	B	COYOTECREEK	E	CROWMELL	A	CULTUS	B
DEPRESSIONAL		COSTILLA	A	COZAD	F	CROWKHITE	C	CULVING	C
COPEMAN	B	COSUMNES	C	COZBERG	B	CROWKS	C	CUMBERLAND	B
COPENHAGEN	D	COTACO	C	COZTUR	D	CROOKED	D	CUMBRES	C
COPITA	B	COTAIL	B	CRAPTREE	C	CROOKED CREEK	D	CUNLEY	C
COPPER RIVER	D	COTANT	D	CRACKERCREEK	B	CROOKED CREEK,	C	CUMMINGS	D
COPPER RIVER,	B	COTATI	C	CRACKLER	F	DRAINED	F	CUMMISKEY	B
LACUSTRINE		COTEAU	C	CRADDOCK	B	CROOKED CREEK,	C	CUNARD	B
SUBSTRATUM		COTHA	C	CRADLEBAUGH	D	FLOODED	D	CUNDICK	D
COPPER RIVER, TILL	B	COTITO	B	CRADLEBAUGH,	B	CROOKSTON	C	CUNDIYO	B
SUBSTRATUM		COTO	B	SALINE-ALKALI		CROON	C	CUNNINGHAM	C
COPPER RIVER,	B	COTOPAXI	A	CRADLEBAUGH,	A	CROPLEY	D	CUPCO	C
SILTY SUBSTRATUM		COTT	B	DRAINED	B	CROPPER	D	CUPOLA	B
COPPER RIVER,	B	COTTER	B	CRAFT	B	CROQUIS	B	CUPPER	B
GRAVELLY		COTTERAL	B	CRAFTON	C	CROSBY	C	CUPPLES	C
SUBSTRATUM		COTTLE	D	CRAGGEY	D	CROSIER	D	CUPPY	D
COPPERCREEK	B	COTTONEVA	C	CRAGO	E	CROSS	C	CURABITH	A
COPPEREID	D	COTTONTHOMAS	B	CPAGOLA	D	CROSSPLAIN	D	CURANT	B
COPPERTON	B	COTTONWOOD	C	CRAGOSEN	D	CROSSTELL	C	CURDLI	C
COPPOCK	B	COTTRELL	C	CRAIG	E	CROSSVILLE	B	CURECANTI	B
COPSEY	D	COTULLA	D	CRAIGMILE	D	CROSSWELL	B/D	CURHOLLOW	D
COQUAT	D	COUCH	D	CRAIGSVILLE	D	CROT	B	CURDB	D
COQUILLE	D	COUGARBAY	D	CRAMER	D	CROTON	D	CURRAN	C
CORA	D	COUGHANDUR	C	CRAMONT	C	CROUCH	B	CURRIER	A
CORAL	C	COULEEDAM	D	CRANE	B	CROW	C	CURRITUCK	D
CORALLAKE	B	COULSTONE	B	CRANECREEK	C	CROW CREEK	C	CURTIN	D
CORBETT	B	COULTEG	B	CRANFILL	B	CROW HILL	B	CURTIS CREEK	D
CORBILT	B	COULTERVILLE	B	CRANFLER	B	CROWCAMP	D	CURTIS SIDING	A
CORBIN	B	COUNCELOR	D	CRANSTON	B	CROWFLATS	B	CURTISTOWN	B
CORCEGA	C	COUNCIL	B	CRARY	C	CROWFOOT	E	CUSHENBURY	B
CORDELL	D	COUNTRYMAN	C	CRASH	B	CROWHEART	C	CUSHING	B
CORDES	B	COUNTS	D	CRATEP LAKE	D	CROWLEY	D	CUSHMAN	C
CORDESTON	B	COUPEE	B	CRATERMO	C	CROWNEST	D	CUSHOOL	C
CORDOVA	C/D	COUPEVILLE	C	CRAVEN	C	CROWSHAW	E	CUSICK	D
CORDY	B	COURT	B	CRAWFOPD	D	CROWTHER	D	CUSTCO	B
CORIFF	B/D	COURTHOUSE	D	CRAWLEYVILLE	D	CROYDON	B	CUSTER	D
CORINTH	C	COURTLAND	B	CREAL	C/D	CROZIER	C	CUSTER, DRAINED	C
CORKSTONE	D	COURTNEY	D	CREASEY	C/D	CRUCES	D	CUTAWAY	B
CORLENA	A	COURTROCK	B	CREDO	B	CRUCKTON	E	CUTHAND	B
CORLETT	A	COURVILLE	B	CREED	C	CRUICKSHANK	C	CUTBERT	C
CORLEY	B/D	COUSE	C	CREEDMOOR	C	CRUISER	B	CUTBERT, GRADED	D
CORMANT	A/D	COUSHATTA	B	CREEL	C	CRUMARINE	B	CUTOFF	C
CORNELIA	A	COUTIS	B	CREEMON	E	CRUME	B	CUTSHIN	B
CORNELIUS	C	COVE	D	CREFORK	C	CRUMP	D	CUTZ	D
CORNHILL	B	COVELAND	D	CREIGHTON	B	CRUMP, DRAINED	B	CUYAMA	B
CORNICK	D	COVELAND, DRAINED	C	CRELDON	C	CRUNKER	C	CUYON	A
CORNING	C	COVELLO	C	CREN	B	CRUNKVAR	A	CYAN	B
CORNISH	C	COVERT	A	CREOLE	D	CRUST	D	CYCLONE	B/D
CORNUTT	C	COVEYTONN	C	CRESLAL	B	CRUTCH	C	CYLINDER	B
CORNVILLE	B	COVILLE	B	CRESBARD	C	CRUTCHER	C	CYMRIC	D
COROLLA	D	COVING	C	CRESCD	C	CRUZE	C	CYNTHIANA	D
CORONA	B	COVINGTON	D	CRESKEN	D	CRYLUMA	B	CYNTHIANA	D
CORONACA	B	COVAN	B	CRESPIN	C	CRYSTAL LAKE	C	CYPHER	D
CORZAL	C	COWARTS	C	CREST	C	CRYSTAL SPRINGS	D	CYRIL	B
COROZO	A	COWCO	B	CRESTLINE	B	CRYSTALBUTTE	E	CZAR	B
CORPENING	D	COWDEN	D	CRESTMAN	D	CRYSTALCREEK	B	DABNEY	A
CORRAL	C	COWDREY	C	CRESTVALE	C	CUATE	C	DABOB	C
CORRALITOS	A	COWEEMAN	D	CPETE	C	CUBA	B	DACKER	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

DACONO	B	DARLAND	B	DECKERVILLE.	C	DELLO. CLAY	B	DESCHELL	B
DACONO, COBBLY	C	DARLEY	C	DRAINED	C	SUBSTRATUM	B	DESCHUTES	C
SUBSTRATUM		DARLING	B	DEELO	B	DELLROSE	B	DESCOT	C
DACORE	B	DARMSTADT	D	DECOLNEY	D	DELLS	C	DESEED	C
DACOSTA	D	DARNELL	C	DECORDOVA	B	DELLWOOD	A	DESERET	C
DADE	A	DARNEN	B	DECAM	C	DELMA	C	DESHA	D
DADINA	D	DAROW	C	DECROSS	B	DELMITA	C	DESHLER	C
DAGAN	B	DARR	C	DECY	E	DELMONT	B	DESKAMP	C
DAGFLAT	C	DARRET	C	DEDAS	C	DELMORTE	C	DESMET	B
DAGLUM	D	DARROCH	B	DEDMOUNT	C	DELORD	D	DESOLATION	B
DAGOR	B	DARROCH, BEDROCK	C	DEDRICK	D	DELOSS	B/D	DESPAIN	B
DAGUAD	C	SUBSTRATUM		DEE	C	DELP	A	DESTAZO	B
DAGUEY	C	CARROUZETT	C	DEECREE	C	DELPHI	B	DESTER	C
DAHAR	C	DAPSIL	C	DEEFAN	C	DELPHILL	C	DETER	C
DAHLOUIST	B	DARST	C	DEEMER	B	DELPEDRA	D	DETOUR	B
DAICK	D	DART	A	DEEPCUT	B	DELPLAIN	D	DETRA	B
DAIGLE	C	DARTMOUTH	B	DEEPEEK	D	DELPOINT	C	DETROIT	C
DAILEY	A	DARVEY	B	DEEPWATER	E	DELRAY	B/D	DEUNAH	D
DAILEY, LOAMY	B	DARWIN	C	DEER CREEK	C	DELRAY.	D	DEV	A
SUBSTRATUM		DASHER	D	DEER PARK	A	DEPRESSIONAL	B	DEVADA	D
DAINT	R	DASSEL	B/D	DEERFIELD	B	DELBRIDGE	B	DEVEN	D
DAKENT	B	DAST	B	DEERFORD	D	DELSON	C	DEVILS	D
DAKOTA	B	DATELAND	B	DEEPHORN	C	DELTAJD	C	DEVILSCREEK	C
DALBD	B	DATEMAN	C	DEERLODGE	C	DELTON	B	DEVILSGAIT	D
DALBY	D	DATIL	E	DEERTON	A	DELWIN	A	DEVILSGAIT,	B
DALCAN	C	DATIND	D	DEERTRAIL	C	DELYNDIA	A	DRAINED,	
DALCO	D	DATIND, STONY	B	DEEPWOOD	B/D	DEMAR	D	OCCASIONALLY	
DALE	B	DATWYLER	C	DEETZ	A	DEMAST	B	DEVILSGAIT,	B
DALECREEK	C	DAULTON	C	DEFENPAUGH	B	DEMENT	B	DRAINED	
DALEVILLE	D	DAVEY	B	DEFIANCE	D	DEMING	B	DEVINE	C
DALHART	B	DAVEY, WARM	A	DEFLEP	B	DEMNY	D	DEVISADERO	C
DALIAN	B	DAVIDELL	B	DEFORD	A/D	DEMNER	B	DEVDE	D
DALIG	B	DAVIDSON	B	DEGARMO	D	DEMOGUL	B	DEVOIGNES	D
DALKENA	C	DAVIS	B	DEGNER	B	DEMONA	C	DEVOIGNES, DRAINED	C
DALLAM	B	DAVISON	B	DEGOLA	B	DEMONTEVILLE	B	DEVOIGNES,	C
DALLARDSVILLE	C	DAVONE	B	DEGRAND	B	DEMOPOLIS	C	PROTECTED	
DALLESPORT	B	DAVES	C	DEGREY	D	DEMOPOLIS, COBBLY	D	DEVOL	B
DALTON	C	DAWHOO	B/D	DEHANA	E	DEMOS	D	DEVORE	B
DALUPE	B	CAWSON	A/D	DEHART	E	DEMOM	B	DEVYD	C
DALZELL	C	DANTONIA	E	DEHAVEN	E	DEMPSEY	B	DEVRIES	C
DAMASCUS	B/D	DAXTY	C	DEHILL	B	DEMPSTER	B	DEWAP	D
DAMERON	B	DAY	D	DEHINGER	B	DENAUD	B/D	DEWEY	B
DAMEWOOD	C	DAYBELL	A	DEJARNET	B	DENAY	B	DEWEYVILLE	D
DAMLUIS	C	DAYSCHOOL	B	DEKALB	C	DENBAR	C	DEWMINE	D
DAPON	D	DAYTON	D	DEKODM	B	DENBY	C	DEWVILLE	B
DANA	B	DAYTONA	B	DEKOVEN	D	DENCO	D	DEXTER	B
DANAHER	C	DAYVILLE	C	DEL REY	C	DENHANKEN	D	DIA	C
DANAVORE	B	DAZE	C	DELA	E	DENISON	C	DIA, WET, SALINE	D
DANCY	B/D	DE MASTERS	B	DELAMETER	A	DENMAN	C	DIA, WET	D
DANDAN	C	DEACON	B	DELANCO	C	DENMARK	D	DIABLO	D
DANDREA	C	DEADFALL	C	DELAND	A	DENNIS	C	DIAGULCH	B
DANDRIDGE	D	DEADHORSE	C	DELANEY	A	DENNOT	B	DIAMANTE	B
DANFORTH	B	DEADMAN	B	DELAND	E	DENNY	D	DIAMOND	D
DANGBERG	D	DEADWOOD	D	DELAUSSUS	C	DENROCK	D	DIAMOND SPRINGS	C
DANIA	B/D	DEADYON	B	DELCOMB	D	DENTON	D	DIAMONDVILLE	C
DANJER	D	DEAMA	D	DELDCIA	D	DENURE	B	DIANEV	C
DANKO	D	DEAN	D	DELECO	D	DENVER	C	DIANDLA	D
DANLEY	C	DEANDALE	D	DELENA	D	DEPALT	D	DIASPAR	B
DANN	C	DEARBORN	E	DELECN	C	DEPCOP	B	DIATEE	B
DANNEMDRA	D	DEARYTON	C	DELEPLAIN	D	DEPOE	D	DIAZ	C
DANSKIN	B	DEATMAN	C	DELETTE	C	DEPORT	D	DIBBLE	C
DANT	D	DEAVER	C	DELFINA	B	DEPPY	D	DIBOLL	D
DANVERS	C	DEBAB	C	DELFT	B/D	DEPUTY	C	DICK	A
DANVILLE	C	DEBENGER	C	DELGADO	D	DERA	B	DICKERSON	D
DAPHNEDEALE	C	DEBEQUE	E	DELHI	A	DERALLO	B	DICKEY	B
DAPON	C	DEPONE	D	DELICIAS	B	DERB	C	DICKINSON, MAP<25	B
DARBONNE	B	DEBORAM	D	DELKS	C/D	DERBY	A	DICKINSON, TILL	A
DARBY	C	DEBS	B	DELL	C	DERECHO	B	SUBSTRATUM	
DARCO	A	DEBUTE	C	DELLEKER	B	DERINDA	C	DICKINSON, MAAT>50	B
DARDANELLE	S	DECAN	C	DELLO, OVERWASH	A	DERLY	D	DICKINSON, MAAT<50	B
DARDEN	A	DECANTEL	D	DELLO, SALINE	C	DEROUX	C	DICKMAN	A
DARDOOM	B	DECATHON	C	DELLC, GRAVELLY	D	DERR	C	DICKSON	C
DARE	D	DECATUR	B	SUBSTRATUM, WET	B	DERRICK	B	DIDDY	D
DARFUR	B/D	DECCA	C	DELLO,	A	DES MOINES, DRY	B	DIEHLSTADT	C
DARGOL	D	DECCA, NONGRAVELLY	C	SALINE-ALKALI	C	DES MOINES, COBBLY	C	DIERSSEN	D
DARIEN	C	DECHEL	D	DELLO, MODERATELY	C	DESAN	A	DIETRICH	C
DARBULL	B	DECKER	C	WET	C	DESART	C	DIGBY	B
DARCCANYON	C	DECKERVILLE	D	DELLO, DRAINED	A	DESATCYA	C	DIGGER	C
DARL	C					DESCALBRADO	D	DIGHTON	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

DIGIORGIO	B	DOLAND	B	DOUGAN	C	DUCHESNE	B	DURFEE	C
DILANSON	D	DOLBEE	C	DOUGCITY	B	DUCKHILL	D	DURHAM	B
DILL	B	DOLBEE, SANDY	B	DOUGCLIFF	D	DUCKREE	B	DURKEE	C
DILLARD	C	SUBSTRATUM	B	DOUGH	D	DUCKSTON	A/D	DURDC	B
DILLEY	B	DOLEKEI	B	DOUGHERTY	B	DUCCO	D	DURRSTEIN	D
DILLVYN	A	DOLEN	B	DOUGHTY	B	DUDA	A	DURST	C
DILMAN	C	DOLES	C	DOUGLAS	B	DUDGEN	D	DUSLER	C
DILTON	D	DOLLAR	C	DOUGVILLE	C	DUDLEY	D	DUSTON	A
DILTS	D	DOLLARD	C	DOUHIDE	C	DUEL	A	DUTCHESS	B
DIMAL	C	DOLLARHIDE	D	DOURO	D	DUELM	A	DUTEK	A
DINEBOX	D	DOLLYCLARK	C	DOVER	C	DUETTE	E	DUTTON	C
DINHICK	D	DOLMAN	C	DOVRAY	C/D	DUFF	B	DUVAL	B
DINO	B	DOLPH	C	DOV	B	DUFFAU	B	DUXBURY	A
DINYAN	C	DOLUS	C	DOVAGIAC	B	DUFFER	B	DUZEL	C
DINA	C	DOME	B	DOVDE	B	DUFFERN	A	DWIGHT	D
DINCO	B	DOMELL	B	DOWELLTON	B	DUFFIELD	D	DWORSHAK	B
DINES	B	DOMENGINE	C	DOWNATA	C	DUFFSON	D	DWYER	A
DINEVD	B	DOMERIE	B	DOWNER	B	DUFFYMONT	E	DYE	D
DINGLE	C	DOMEZ	B	DOONEY	B	DUFORT	B	DYKE	B
DINGLISHNA	D	DOMINGUEZ	C	DOONEYVILLE	C	DUFUR	D	DYLAN	D
DINGMAN	C	DOMINIC	B	DOWNS	B	DUGGINS	E	DYRENG	D
DINKELMAN	B	DOMIND	C	DOYCE	C	DUGOUT	D	EACHUS	B
DINKELS	B	DOMINSON	A	DOYCE, LOAMY	A	DUGWAY	C	EACHUSTON	D
DINMEN	B	DOMO	B	SUBSTRATUM	B	DUKES	C	EAD	C
DINSDALE	B	DONA ANA	B	DOYCE, MODERATELY	C	DULAC	C	EAGAR	B
DINUBA	C	DONAHUE	C	WET	C	DULCE	D	EAGLECONE	B
DINWODDY	B	DONALD	C	DOYCE, SANDY	C	DULEYLAKE	C	EAGLEPASS	D
DINZER	B	DONALDSON	B	SUBSTRATUM	B	DULLES	D	EAGLEROCK	B
DIOBSUD	C	DONAVAN	B	DOYLESTOWN	B	DULUTH	D	EAGLEVILLE	D
DIOXICE	B	DONERAIL	C	DOYN	C	DUMAS	D	EAGLEWING	B
DIPHAN	D	DONEY	C	DRA	C	DUMFRIES	C	EAKIN	B
DIPSEA	B	DONICA	A	DRAGE	B	DUMMERSTON	B	EALY	B
DIQUE	B	DONICA, LOAMY	B	DRAGON	C	DUMONT	C	EAPA	B
DIREGO	D	SURFACE	B	DRAGSTON	C	DUN GLEN	B	EARCREE	B
DISABEL	C	DONIPHAN	B	DRAKE	B	DUNBAR	D	EARLE	D
DISAUTEL	B	DONKEHILL	D	DRAK NAB	A	DUNBARTON	D	EARLMONT	D
DISCO	B	DONLONTON	C	DRALL	E	DUNBRIDGE	B	EARLMONT, DRAINED	C
DISHNER	D	DONNA	D	DRANYON	B	DUNC	C	EARP	B
DISHPAN	C	DONNAN	C	DRAPER	C	DUNCAN	D	EARSMAN	D
DISTELL	C	DONNARDO	B	DRAX	B	DUNCANNON	B	EASBY	D
DISTERHEFF	C	DONNEL	B	DRAX, WET	C	DUNCKLEY	B	EASLEY	C
DISTON	C	DONNELLY	A	DREDGE	B	DUNCOM	D	EASPUR	B
DISWOD	D	DONNER	C	DRESSER	B	DUNDAS	B/D	EAST FORK	C
DITCHCAMP	C	DONNING	D	DRESSLER	C	DUNDAY	A	EAST LAKE	A
DITHOD	C	DONNYBROOK	D	DRFWING	D	DUNDEE	C	EASTABLE	B
DITNEY	C	DOOLELINK	B	DREWS	B	DUNELLEN	B	EASTCAN	B
DIVERS	B	DOOLEY	C	DREXEL	C	DUNFORD	C	EASTCHOP	A
DIVIDE	B	DOOLIN	D	DRIFWOOD	D	DUNGENESS	C	EASTGATE	B
DIVOT	C	DOONE	B	DRIGGS	C/D	DUNKIRK	B	EASTLAND	B
DIX	A	DOOR	B	DRISCOLL	C	DUNLAP	C	EASTON	D
DIXALETA	D	DOOWAK	A	DRIT	C	DUNLATOP	B	EASTPORT	A
DIXBORD	B	DORA	B/D	DRIVER	C	DUNMORE	B	EASTWELL	D
DIXIE	C	DORAN	C	DRISM	C	DUNN	D	EASTWOOD	D
DIXMONT	C	DORB	C	DRIVAL	C	DUNNING	A	EATON	D
DIXON	B	DORCHESTER	B	DRUM	C	DUNNLAKE	C	EAGALLIE	B/D
DIXONVILLE	C	DORERTON	B	DRUMMER	B/D	DUNNVILLE	D	EAGALLIE,	D
DIYOU	C	DORMONT	C	DRUMMOND	D	DUNOIR	B	DEPRESSIONAL	B
DOAK	B	DORNA	B	DRURY	B	DUNPHY	C	EAPLEINE	B
DOAKUM	B	DORDSHIN	D	DRY CREEK	C	DUNPHY, DRAINED	B	EBA	C
DOBBINS	C	DOROTHEA	C	DRY LAKE	C	DUNPHY, HARDPAN	B	EBAL	B
DOBBS	C	DOROVAN	D	DRYADINE	C	SUBSTRATUM	B	EBBERT	C/D
DOBEL	D	DORRBERG	D	DRYBURG	B	DUNSMUIR	B	EBBS	B
DOBENT	C	DORRANCE	A	DRYDEN	B	DUNSMUIR,	C	EBIC	C
DOBROW	D	DORS	B	DRYN	C	NONGRAVELLY	C	EBODA	B
DOBY	D	DORSET	B	DRYVALLEY	C	DUNTON	C	EBODA, STONY	C
DOCAS	B	DOSAMIGOS	D	DU PAGE	B	DUNUL	A	EBON	C
DOCDEE	D	DOSPALOS	D	DUANE	E	DUPEE	C	EBRO	D
DOCENA	C	DOSS	C	DUART	C	DUPLIN	C	ECCLES	B
DOCKERY	C	DOSSMAN	B	DUBAKELLA	C	DUPD	C	ECHARD	D
DOCPAR	B	DOTEN	D	DUBAKELLA,	C	DUPONT	D	ECHAW	A
DOCT	C	DOTHAN	B	GRAVELLY	C	DUPREE	D	ECHENMOOR	C
DODES	B	DOTLAKE	D	DUBAKELLA, COBBLY	C	DURADDS	A	ECKEPT	D
DODGE	B	DOTSERO	B	DUBAY	B	DURALDE	C	ECKLEY	B
DODGEVILLE	B	DOTTA	B	DUBBS	B	DURAND	B	ECKMAN	B
DDSDN	C	DOTY	B	DUBBS, FLOODED	C	DURANGO	C	ECKRANT	D
DOEL	C	DOUCETTE	B	DUBINA	B	DURANT	D	ECKVOLL	B
DOGER	A	DOUDLE	B	DUBLON	E	DURAZO	A	ECLIPSE	B
DOGIECREEK	B	DOUDS	B	DUBDIS	C	DURBIN	D	ECOLA	C
DOGUE	C	DOUGAL	D	DUBUQUE	B	DURELLE	B	ECON	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

ECONFINA	A	ELBOWLAKE	B	ELRICK	B	ENDCHVILLE.	C	ESTER	D
ECTOR	D	ELBURN	B	ELRIN	F	DRAINED	C	ESTER, THAWED	C
EDALGO	C	ELBUTTE	D	ELROSE	B	ENDLA	B	ESTERO	D
EDDINGS	B	ELCDO	F	ELS	A	ENON	C	ESTES	D
EDDS	B	FLO	B	ELSAM	B	ENOREE	D	ESTESLAKE	C
EDDY	C	ELDEAN	F	ELSIE	E	ENOS	C	ESTHERVILLE	B
EDEN	C	ELDER	B	ELSINBORO	B	ENOSBURG	C	ESTO	B
EDENBOWER	D	ELDER HOLLOW	D	ELSMERE	A	ENSENADA	B	ESTRELLA	B
EDENTON	C	ELDERON	E	ELSTON	B	ENSIGN	D	ETACH	C
EDFRO	D	ELDERON, STONY	A	ELTREE	B	ENSLEY	B/D	ETCHEN	C
EDGAR	B	ELDGIN	B	ELTSAC	D	ENSTPOM	C	ETELKA	C
EDGE	D	ELDDN	B	ELVE	B	ENTENTE	B	ETHAN	B
EDGEHILL	C	ELDORADO	F	ELVEDERE	C	ENTERO	D	ETHANIA	B
EDGELEY	C	ELDRIDGE	C	ELVERP	B/D	ENTEPPRISE	B	ETHELMAN	B
EDGEWATER	B	ELECTRA	C	ELVIPA	B/D	ENTIAT	D	ETHETE	B
EDGEWICK	C	ELEROY	B	ELWELL	C	ENTMOOT	C	ETHETE, SALINE	C
EDGINGTON	C/D	ELEVA	B	ELWHA	C	ENVILLE	C	ETHRIDGE	C
EDINA	D	ELFCREEK	C	ELWOOD	C	ENVOL	D	ETIL	A
EDINBURG	C	ELFRIDA	B	ELY	B	ENZIAN	D	ETOE	B
EDISTO	C	ELGEE	A	ELYSTAN	E	EOJ	C	ETOILE	D
EDLIN	B	ELHINA	C	ELZINGA	F	EDLA	D	ETOWAH	B
EDLOE	B	ELIJAH	C	EMEAR	B	EPHRAIM	C	ETOWN	B
EDMINSTER	D	ELINDIO	C	EMARGO	C	EPHRATA	B	ETSEL	D
EDMONDS	D	ELIOAK	C	EMDEN	B	EPIKOM	D	ETTA	B
EDMORE	D	ELIZA	D	EMBERTON	C	EPLEY	C	ETTER	B
EDMUND	D	ELK	B	EMBLEM	B	EPOKE	B	ETTERSBURG	B
EDMUNDSTON	B	ELK HOLLOW	B	EMERY	E	EPOY	B	ETTRICK	B/D
EDNA	D	ELK MOUNTAIN	B	EMBUDD	F	EPOUFETTE	R/D	EUBANKS	B
EDNEYTOWN	B	ELKA	C	EMDENT	D	EPPING	D	EUCLID	C
EDNEYVILLE	B	ELKADER	B	EMDENT, BEDROCK	C	EPSIE	D	EUDRA	B
EDOM	C	ELKCREEK	C	SUBSTRATUM,		EPVIP	D	EUER	B
EDROY	D	ELKHART	B	DRAINED	B	EGUIS	D	EUFULA	A
EDSON	C	ELKHILLS	B	EMDENT, DRAINED	C	ERA	B	EUHARLEE	B
EDWARDS	B/D	ELKHORN	E	EMERALD	E	ERAKATAK	C	EULONIA	C
EEL	B	ELKINS	D	EMERALDA	D	ERAM	C	EUNOLA	C
EELCOVE	D	ELKINSVILLE	F	EMERSON	F	ERAMOSH	D	EUREKA	D
EELPOINT	D	ELKMOUND	D	EMIGRANT	C	ERBER	C	EUSEIO	C
EEP	C	ELKNER	B	EMIGRATION	G	ERCAN	B	EUSTIS	A
EEFFIE	C	ELKOL	D	EMILY	B	EPD	D	EUTAW	D
EFFINGTON	D	ELKRIDGE	B	EMLIN	C	ERICSON	B	EVADALE	D
EGAN	C	ELKSEL	C	EMMA	C	FRIE	C	EVANGELINE	C
EGAN	B	ELKTON	C/D	EMMERT	A	ERIN	B	EVANS	B
EGAS	D	ELLABELLE	D	EMMET	E	ERNEM	D	EVANSHAM	D
EGBERT	D	ELLEDGE	C	EMMONS	B	ERNEST	C	EVANSTON	B
EGBERT, SPATIFIED	C	ELLEN	F	EMORY	E	ERNO	B	EVANSVILLE	B/D
SUBSTRATUM		ELLETT	D	EMCY	E	ERRAMOUSPE	C	EVANT	D
EGBERT, MODERATELY	C	ELLIBER	A	EMPEDRADO	B	EPVIDE	C	EVARD	B
WET		ELLICOTT	A	EMPEYVILLE	C	ESCABOSA	C	EVARD	B
EGBERT, DRAINED	C	ELLINGTON	B	EMPIRE	B	ESCALANTE	B	EVART	D
EGBERT, SANDY	C	ELLINOR	C	EMPORIA	C	ESCAMBIA	C	EVENDALE	C
SUBSTRATUM		ELLIOTT	C	EMRICK	B	ESCANABA	A	EVERETT	A
EGBERT, SLOPING	C	ELLIOTTSVILLE	B	EMRO	C	ESCANO	C	EVERETT, HARD	B
EGELAND	B	ELLIS	D	ENAP	B	ESCARLO	E	SUBSTRATUM	
EGINBENCH	C	ELLISFORDE	B	ENBAR, WET	D	ESCONDIDO	C	EVERGLADES	B/D
EGLIN	A	ELLISVILLE	B	ENCAMPMENT	E	ESHAMY	B	EVERLY	B
EGYPT	D	ELLOAM	D	ENCHANTED	B	ESLEND	D	EVERMAN	C
EICKS	C	ELMORE	D	ENCIERPG	D	ESMEPALDA	B	EVERSON	D
EIGHTLAP	D	ELLSWORTH	C	ENCINA	E	ESMOND	B	EVERWHITE	C
EIGHTMILE	D	ELLUM	C	ENCAV	C	ESPARTO	P	EVESSBORO	A
EILERTSEN	B	ELLZEY	E/D	ENDERS	C	ESPELIE	B/D	EVRIDGE	B
EITZEN	B	ELM LAKE	A/D	ENDERSBY	E	ESPIL	D	EWA	B
EKAH	C	ELMDALE	B	EMCICOTT	C	ESPINAL	A	EWA, BEDROCK	C
EKALAKA	B	ELMENDORF	D	EADLICH	B	ESPINOSA	B	SUBSTRATUM	
EKIM	C	ELMIRA	C	FNDASV	C	ESPINT	D	EWALL	A
EKRUB	D	ELMONT	A	ENERGY	B	ESPLIN	D	EXCELSTOR	B
EL DARA	B	ELMORE	F	ENET	B	ESPY	C	EXCQUEUR	D
EL PECO	C	ELMORRIDGE	B	ENFIELD	B	ESQUATZEL	B	EXCLOSE	B
EL RANCHO	B	ELMVILLE	C	ENGELHARD	C	ESRO	D	EXEL	C
EL SOLVD	C	ELMWOOD	B	ENGETT	B/D	ESRO, MODERATELY	C	EXETER	C
ELAM	A	ELNIDO	C	ENGL	A	WET	B	EXETER, THICK	B
ELAM, HARDPAN	B	ELNDRA	C	ENGLWOOD	C	ESS	B	SOLUM	B
SUBSTRATUM		ELOCHOMAN	B	ENK	C	ESSAL	B	EXETTE	B
ELANDCO	B	ELOCIN	B	ENK, OVERBLOWN	B	ESSEN	C	EXIRA	B
ELBA	C	ELOJKA	D	ENLDE	D	ESSEX	C	EXLINE	D
ELBAVILLE	B	ELOKA	B	ENNING	D	ESSEXVILLE	A/D	EXRAY	D
ELBERT	D	ELOMA	C	ENNIS	B	ESTACADO	B	EXUM	C
ELBETH	B	ELPAM	D	ENOCK	C	ESTACION	B	EYAK	C
ELBON	B	ELPEDRO	B	ENDCHVILLE	D	ESTATE	C	EYERROD	C
		ELRED	B/D			ESTELLINE	B	EYLAU	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UMDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

EYOTA	A	FARRAGUT	C	FETTYC	D	FLATRON	D	FORKWOOD	B
EYRE	D	FARRAR	B	FETZER	C	FLATTOP	D	FORMADER	C
EZBIN	B	FARRELL	B	FEZ	C	FLAXTON	B	FORMAN	B
FABIUS	B	FARRENBURG	B	FIANDER	D	FLEAK	D	FORMDALE	B
FACEVILLE	B	FARROT	C	FIANDER, DRAINED	C	FLEER	A/D	FORNEY	D
FACEY	B	FARSON	B	FIAT	C	FLEISCHMANN	D	FORNOR	B
FACTORY	C	FARSON, WET	B	FIDALGO	C	FLEMING	C	FORREST	C
FACTORY, MOIST	B	FARVA	C	FIDDLER	C	FLEMINGTON	D	FORSEER	C
FADDIN	D	FARVANT	D	FIDDLETOWN	B	FLETCHER	B	FORSEY	B
FADOLL	B	FASHING	D	FIDDYMENT	D	FLEWSIE	B	FORSGREEN	C
FAGAN	C	FASKIN	B	FIELD	C	FLEX	D	FORSYTH	A
FAGASA	C	FATHOM	A	FIELDCREEK	B	FLO	A	FORT COLLINS	B
FAMEY	B	FATINA	B	FIELDING	B	FLOOR	D	FORT MEADE	A
FAIM	C	FATTIG	C	FIELDON	B/D	FLOKE	D	FORT MOTT	A
FAIM, MOIST	B	FAUNCE	A	FIFER	D	FLOM	B/D	FORT ROCK	C
FAIRBANKS	B	FAUNSDALE	D	FIFIELD	C	FLOMATON	A	FORTANK	C
FAIRBURN	D	FAUQUIER	C	FILION	D	FLOMOT	B	FORTESCUE	C/D
FAIRCHILD	C	FAUSSE	D	FILIRAN	D	FLOODWOOD	B	FORTUNA	D
FAIRDALE	B	FAVRET	C	FILLMORE	D	FLORANOME	A	FORTWINGATE	C
FAIRFAX	B	FAVIN	B	FINCASLE	C	FLORALA	C	FORTYFOUR	C
FAIRFIELD	B	FAX	C	FINCH	C	FLORENCE	C	FORVIC	C
FAIRHAVEN	B	FAXON	B/D	FINCHFORD	A	FLORESVILLE	C	FORWARD	B
FAIRLIE	D	FAYETTE	B	FINDOUT	D	FLORIDANA	D	FOSS	B
FAIRLO	B	FAYETTEVILLE	B	FINGAL	C	FLORIDANA,	B/D	FOSSILON	D
FAIRMOUNT	D	FAYWOOD	C	FINGEROCK	D	DEPRESSIONAL	D	FOSSUM	A/D
FAIRPLAY	B	FE	D	FINLAND	C	FLORIDANA, FLOODED	D	FOSTER	C
FAIRPOINT	C	FEARS	B	FINLEY	B	FLORIN	C	FOSTORIA	B
FAIRPORT	C	FEATHERLEGS	B	FINLEYPPOINT	B	FLORISSANT	C	FOUNTAIN	D
FAIRWAY	C	FEATHERSTONE	D	FINNERTY	D	FLORITA	B	FOUR STAR	C
FAIRYDELL	C	FEDJI	A	FIND	B	FLOTAG	B	FOUR STAR, DRAINED	B
FAIRYLAWN	D	FEDORA	B/D	FINDL	C	FLOWELL	C	FOURCHE	B
FAJARDO	C	FEDSCREEK	B	FIONE	B	FLOWEREE	B	FOURLOG	D
FALAYA	D	FELAN	B	FIPADA	C	FLOYD	B	FOURME	B
FALBA	D	FELCHER	B	FIREBALL	B	FLUETSCH	B	FOURMILE	B
FALCON	D	FELDA	B/D	FIREBOX	B	FLUGLE	B	FOX	B
FALFA	C	FELDA,	D	FIRESTEEL	B	FLUKER	C	FOXCREEK	D
FALFURRIAS	A	DEPRESSIONAL	D	FIPSTONE	C	FLUVANNA	C	FOXCREEK, DRAINED	C
FALK	C	FELICITY	A	FIRNAGE	B	FLYBOW	D	FOXHOME	B
FALKIRK	B	FELIPE	D	FIRD	D	FLYGARE	B	FOXMOUNT	C
FALKNER	C	FELIZ	B	FIRCKE	E	FLYNN	B	FOXDL	D
FALLBROOK	B	FELKER	B	FIRSTVIEW	C	FLYNNCOVE	B	FOXTON	C
FALLCREEK	C	FELLOWSHIP	D	FIRTH	C	FOAD	C	FOXWORTH	A
FALLERT	B	FELDR	B	FIRTH, DRAINED	B	FOARD	D	FRADDLE	B
FALLON	C	FELT	B	FISHERMAN	D	FOEHLIN	B	FRAILEY	B
FALLON, NONFLOODED	B	FELTA	C	FISHERS	B	FOIDEL	B	FRAILTON	D
FALLSAM	D	FELTHAM	B	FISHFIN	D	FOLA	B	FRAM	B
FALLSINGTON	B/D	FELTNER	D	FISHHOOK	D	FOLDANL	B	FRANCIS	A
FALOMA	D	FELTON	B	FISHLAKE	D	FOLEY	D	FRANCISCAN	D
FALSEN	A	FELTONIA	B	FISHPOT	C	FOLLET	D	FRANCISQUITO	C
FALULA	D	FENCE	B	FISHROCK	D	FOMSENG	C	FRANCITAS	D
FANAL	C	FENDALL	C	FISHTRAP	D	FONDA	D	FRANSEN	B
FANCHER	C	FENELON	C	FISK	P	FONDIS	C	FRANKFORT	C
FANDANGLE	C	FENN	D	FITCHVILLE	C	FONNER	B	FRANKIRK	C
FANDOW	D	FENSTER	B	FITZGERALD	B	FONS	B	FRANKLIN	B
FANG	B	FENWICK	C	FITZHUGH	E	FONTANA	B	FRANKSTOWN	B
FANNIN	B	FENWOOD	B	FIVEBLOCK	C	FONTREEN	C	FRANKTOWN	D
FANNO	C	FERA	C	FIVEMILE	B	FOPIAND	D	FRANKVILLE	B
FANSHAW	B	FERDEFORD	C	FIVEMILE, SALINE	C	FORADA	B/D	FRATERNIDAD	D
FANTZ	C	FERDINAND	C	FIVEOH	B	FORAKER	D	FRAVAL	C
FANU	B	FEREBEE	D	FIVEPINE	D	FORBAR	D	FRAVAL, GRAVELLY	B
FAPS	C	FERGUS	B	FIVES	B	FORBES	C	FRAZER	C
FARAWAY	D	FERN CLIFF	B	FIVESPRINGS	C	FORBESVILLE	C	FRAZERTON	B
FARB	D	FERNANDO	B	FLACO	C	FORBING	D	FRED	C
FARBER	B	FERNCREEK	D	FLAGG	B	FORD	D	FREDENSBOG	C
FARGO	D	FERNDALE	B	FLAGG	B	FORDICE	B	FREDERICK	B
FARISITA	D	FERNEY	D	FLAGSTAFF	D	FORDNEY	A	FREDON	C
FARLAND	B	FERNHAVEN	B	FLAK	C	FORDNEY, WET	C	FREDONIA	C
FARLOW	B	FERNLEY	C	FLAMBEAU	B	FORDTRAN	C	FREDONYER	C
FARLOW, HIGH	C	FERNOW	B	FLAMING	A	FORDUM	D	FREE	B/D
RAINFALL	C	FERNPOINT	B	FLANAGAN	B	FORDVILLE	B	FREEBURG	C
FARNELL	B	FERNWOOD	B	FLANDREAU	B	FORELAND	D	FREECE	D
FARNINGTON	C	FERRELD	B	FLANE	C	FORELLE	B	FREEDOM	C
FARNSWORTH	D	FERRIS	D	FLANLY	B	FORESMAN	B	FREEDOM, SALINE	B
FARNTON	D	FERROBURRO	D	FLASHER	D	FORESTBURG	D	FREEHOLD	B
FARNHAM	B	FERRON	D	FLAT HORN	B	FORESTDALE	D	FREELAND	C
FARNHAMTON	C	FERTALINE	D	FLATHEAD	B	FORESTER	C	FREEMAN	C
FARNUF	B	FERTEG	C	FLATIRONS	C	FORESTON	C	FREEMANVILLE	B
FARNUF, WET	C	FESTINA	B	FLATNOSE	B	FORGAY	B	FREED	B
FARNUM	B	FETT	D	FLATONIA	D	FORK	C	FREER	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

FREEST	C	FULSHEAR	C	GAPCOT	D	GED	D	GILTSPIE	D
FREESTONE	C	FULSTONE	D	GAPD	D	GEE	C	GILLAND	C
FREETOWN	D	FULTON	D	GAPD, DRAINED	C	GEEBURG	C	GILLENDER	D
FREEWATER	B	FULTS	D	GAPPMAIER	B	GEENORE	C	GILLIAM	C
FREEZENER	P	FULWIDER	D	GARA	C	GEER	B	GILLIGAN	B
FREEZEDUT	B	FUNTER	D	GARPER	B	GEERTSEN	B	GILLS	C
FRELSBURG	D	FUQUAY	B	GARRO	B	GEFO	A	GILLSBURG	C
FREMDNT	C	FURNISS	D	GARRUTT	B	GEISEL	B	GILMAN	B
FREN	B	FURSHUR	D	GARCEND	C	GEKE	C	GILMORE	C
FRENCH	C	FURY	D	GARCES	D	GELKIE	B	GILPAR	B
FRENCHCREEK	B	FURY, DRAINED	C	GARCIA	C	GEM	C	GILPIN	C
FRENCHJOHN	C	FUSULINA	D	GARCITAS	D	GEM, STONY	D	GILROY	C
FRENCHMAN	B	FUSUYAR	D	GAPCON	D	GEMID	C	GILSTON	B
FRENCHTOWN	D	GAASTRA	C	GARDELLA	D	GEMSON	D	GILT EDGE	B
FRESHWATER	D	GABALDON	B	GARDENA	P	GENAW	D	GILMETT	D
FRESNO,	D	GABBS	C	GARDINER	A	GENEGRAF	B	GINAT	D
SALINE-ALKALI		GABBVALLY	D	GARDNER'S FOPK	B	GENESE	B	GINEX	D
FRESNO, THICK	C	GABEL	C	GARDNERVILLE	C	GENEVA	B	GINGER	D
SOLUM		GABICA	D	GARDONE	A	GENDA	D	GINI	D
FREWA	B	GABIND	D	GAREY	B	GENOLA	B	GINLAND	D
FREZNIK	D	GACEY	D	GARFAN	B	GENTILLY	D	GINNIS	C
FRIANA	D	GACHADD	D	GARFIELD	C	GENTRY	D	GINSER	C
FRIANT	D	GACIBA	D	GARHILL	D	GEDCONDA	C	GIRARD	D
FRIDLO	C	GADDES	C	GARIPER	C	GESHROCK	C	GIRARDDT	D
FRIEDLANDER	C	GADDY	A	GARITA	E	GEORGE CREEK	B	GIRD	B
FRIEDMAN	C	GADSDEN	C	GARLAND	B	GEORGETOWN	D	GIST	D
FRIENDS	C	GADSDEN, WET	C	GARLET	E	GEORGEVILLE	B	GITAKUP	C
FRIENDSHIP	A	SUBSTRATUM		GARLOCK	B	GEORGIA	C	GITAM	D
FRIES	D	GADWELL	C	GARKON	C	GEPPORD	D	GIVIN	C
FRIESLAND	B	GAGEBY	B	GARKOPE	B	GEPP	B	GLACIER CREEK	A
KIJLES	B	GAGETON	E	GARNEL	D	GEPPERT	C	GLADDEN	B
FRINDLE	C	GAGIL	B	GARKNER	D	GERALD	D	GLADEL	D
FRINES	C	GAMEE	P	GARNES	B	GERPER	D	GLADEVILLE	D
FRIO	B	GAIK	D	GARD	D	GERDRUM	D	GLADEWATER	D
FRIONA	C	GAILA	B	GARR	D	GERING	E	GLADSTONE	B
FRITTON	C	GAINES	C	GAFRETSON	P	GERLACH	D	GLADWIN	A
FRIPP	A	GAINESBORO	C	GARRETT	B	GERLANE	B	GLASGOW	C
FRISCO	B	GAINESVILLE	A	GARRISON	E	GERLE	B	GLASSNER	D
FRISITE	B	GALATA	D	GARPOCHALES	D	GERMANTOWN	B	GLEAN	B
FRITZ	B	GALBRETH	D	GARSID	C	GERMANY	E	GLEASON	B
FRITZELL	C	GALCHUTT	C	GAPTON	C	GERMER	C	GLEEE	C
FROBEPG	D	GALE	E	GARVESON	C	GERONI	E	GLEN	B
FRODD	D	GALEN	B	GARVIN	D	GERRARD	C	GLENBAP	B
FROHMAN	C	GALEPPI	B	GARVIN	B/D	GERRARD, DRAINED	E	GLENBAR, WET	C
FROLIC	B	GALESTINA	C	GAFZA	B	GERST	D	GLENBERG	B
FROLIC,	C	GALESTOWN	A	GARZONA	D	GESSIE	D	GLENBLAIR	B
ELEVATION<5000		GALEY	B	GAS CREEK	D	GESSNER	P/D	GLENBROOK	C
FROLIC, FLOODED	C	GALILEE	C	GASCONADE	D	GESTRIN	B	GLENCARB	C
FRONDORF	B	GALISTEO	C	GASIL	P	GETAWAY	B	GLENCARB, WET,	E
FRONTENAC	B	GALISTEO,	C	GASGUT	B	GETCHELL	C	SALINE	
FRONTIER	C	SALINE-ALKALI		GASSAWAY	D	GETRAIL	D	GLENCOE	B/D
FRONTON	D	GALLAND	C	GASSVILLE	C	GETTYS	C	GLENCOE, PONDED	D
FROST	D	GALLATIN	C	GASTON	C	GETZVILLE	D	GLENDALE	B
FROZARD	C	GALLEGOS	B	GAT	P	GEWTER	C	GLENDALE, WET	C
FRUITA	B	GALLEN	E	GATES	P	GEYSEN	C	GLENDALE, RARELY	C
FRUITFIELD	A	GALLIA	E	GATESCN	C	GIBBLER	C	FLOODED	
FRUITHURST	C	GALLIME	B	GATEVIEW	B	GIBBON	B	GLENDECKER	B
FRUITLAND	B	GALLION	B	GATEWAY	C	GIBBONSCREEK	C	GLENDEIVE	B
FRUITLAND,	C	GALLMAN	B	GATEWOOD	C	GIBBS	D	GLENDORA	A/D
MODERATELY WET		GALLUP	E	GATLIN	B	GIBNEY	C	GLENEDEN	D
FRUITLAND, WET	C	GALDO	C/D	GATOR	D	GIBSONVILLE	D	GLENELG	B
FRYE	C	GALT	D	GATTON	P	GIBVELL	C	GLENFORD	C
FRYEBURG	B	GALVA	P	GAULDY	B	GIDEON	C	GLENHALL	B
FT. DRUM	C	GALVESTON	A	GAULEY	C	GIELD	C	GLENHAM	B
FT. GREEN	D	GALVEZ	C	GAVEL	C	GIFFORD	D	GLENMEN	B
FUBAR	C	GALVIN	D	GAVILAN	C	GIGGEP	C	GLENMORA	C
FURBLE	D	GALWAY	B	GAVINS	D	GILA	B	GLENNALLEN	C
FUEGO	C	GAMBLER	B	GAVIOTA	D	GILBERT	D	GLENONA	B
FUEGOSTA	D	GAMBOA	B	GAY	B/D	GILBOA	B	GLENPODL	A
FUERA	C	GANGEE	C	GAYLESVILLE	D	GILBY	D	GLENRIO	D
FUGAWEE	B	GANADO	D	GAYLORD	C	GILCHPIST	A	GLENROSE	B
FUGHES	C	GANCE	C	GAYNCR	C	GILCO	B	GLENROSS	D
FULCHER	C	GANDO	D	GAYVILLE	D	GILCREST	B	GLENSTED	D
FULDA	C/D	GANIS	D	GAZELLE	D	GILEAD	C	GLENTON	B
FULLAM	C	GANNETT	D	GAZDS	C	GILES	B	GLENTON, WET	C
FULLER	D	GANSNER	C	GAZWELL	C	GILFORD	B/D	GLENTOSH	A
FULLERTON	B	GANSNER, PONDED	D	GEARHART	D	GILFORD,	D	GLENVIEW	C
FULMER	D	GANY	B	GEARY	B	STRATIFIED		GLENVILLE	C
FULMER, DRAINED	C	GAPBUTTE	B	GEBSON	B	SUBSTRATUM		GLENYON	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

GLOHM	C	GOOSEFLATS	D	GRANGEVILLE.	E	GRELLTON	B	GUAYABOTA	D
GLORIA	D	GOOSMUS	B	DRAINED	E	GRENADA	C	GUAYAMA	D
GLOUCESTER	A	GORDD	B	GRANGEVILLE.	E	GRENADIER	B	GURE	C
GLOVER	C/D	GORE	D	OCCASIONALLY		GRENVILLE	E	GUBEN	B
GLYNDON	B	GOREEN	D	FLOODED		GRESHAM	C	GUCKEEN	C
GLYNN	C	GORGAS	D	GRANILE	F	GRETDIVID	B	GUDGEL	C
GLYNWOOD	C	GORGONIO	A	GRANDMOUNT	C	GREWINGK	C	GUDGREY	B
GLYPHS	B	GORHAM	B/D	GRAND	D	GREYBACK	B	GUELPH	B
GOBAR	B	GORIN	C	GRANSHAW	F	GREYBO	F	GUEMES	B
GOBERNADOR	D	GORING	C	GRANT	R	GREYBULL	C	GUENOC	B
GOBINE	B	GORMAN	C	GRANTFORK	D	GREYEAGLE	D	GUENTHER	B
GOBLE	C	GORSKEL	D	GRANTHAM	D	GREYS	B	GUERNSEY	C
GOBLIN	D	GORST	D	GRANTSBURG	C	GRIBBLE	D	GUERO	C
GOCHEA	B	GORUS	B	GRANTSDALE	B	GRIDELL	D	GUERRERO	A
GODDARD	B	GORZELL	B	GRANVILLE	B	GRIDGE	D	GUEST	D
GODDE	D	GOSA	B	GRANYON	B	GRIDLEY	C	GUFFEY	C
GODDING	C	GOSHEN	B	GRANZAN	B	GRIETA	B	GUFFIN	D
GODECKE	D	GOSHUTE	D	GRAPEVINE	B	GRIEVES	F	GUGUAK	D
GODFREY	D	GOSINTA	C	GRAPIT	E	GRIFFITH	D	GUILDEP	C
GODVIN	D	GOSLIN	B	GRASHUL	C	GRIFFY	B	GUISER	B
GOEMMER	C	GOSNEY	D	GRASWERE	B	GRIFTON	D	GULER	B
GOESLING	B	GOSPER	C	GRASSNA	F	GRIGSEY	B	GULF	B/D
GOESSEL	D	GOSPORT	B	GRASSVAL	D	GRIGSTON	E	GULKANA	B
GOFFPEAK	B	GOSS	B	GRASSVALLEY	D	GRIMM	A	GULNARE	D
GODBEC	B	GOSUMI	D	GRASSY BUTTE	A	GRIMM, STONY	B	GUMBLE	D
GOL	D	GOTEBO	B	GRASSY CONE	A	GRIMSLEY	B	GUMBOOT	D
GOL	C	GOTHAM	A	GRAT	D	GRIMSTAD	E	GUMBOOT, DRAINED	C
GOL, NONSTONY	C	GOTHARD	C	GRATTAN	A	GRIMSTONE	B	GUNBARREL, SALINE	D
GOL, GRAVELLY	C	GOTHENBURG	D	GRAUFELS	C	GRINA	D	GUNBARREL, DRAINED	A
GOLCONDA	C	GOTHIC	C	GRAVDEN	D	GRINDALL	D	GUND	C
GOLD CREEK	D	GOTHO	C	GRAVELTON	E/D	GRINDBROOK	C	GUNDY	C
GOLDBERG	D	GOTHO, MODERATELY	B	GRAVIER	B	GRINDSTONE	C	GUNLOCK	C
GOLDENDALE	B	WET		GRAYBERT	B	GRIK	C	GUNN	B
GOLDFINCH	D	GOTHO, COOL	B	GRAYCALM	A	GRINROD	C	GUNNEL	D
GOLDHEAD	B/D	GOULDING	B	GRAYFORD	B	GRISDALE	B	GUNSIGHT	B
GOLDHILL	D	GOULDSBORO	D	GRAYLAND	D	GRISWOLD	B	GUNSONE	D
GOLDHILL, LDAMY	C	GOURDIN	C	GRAYLAND, DRAINED	C	GRITNEY	C	GUNSTOCK	C
SUBSTRATUM		GOURLEY	C	GRAYLING	A	GRIVER	C	GUNTER	B
GOLDLAKE	B	GOVE	B	GRAYLOCK	A	GRIVER, WET	D	GUP	C
GOLDMAN	C	GOWEN	B	GRAYLOCK, STONY	B	GRIVER, DRAINED	B	GURDANE	C
GOLDMIRE	C	GOWKER	C	GRAYPOINT	B	GRIZZLY	B	GURDON	C
GOLDRIDGE	B	GOXTON	B	GRAYPOINT, WET	C	GROBUTTE	B	GURLEY	C
GOLDRUN	A	GOZEM	D	GRAYROCK	C	GROGAN	B	GURNEY	B
GOLDSBORO	B	GRABE	B	GRAYS	B	GROOM	C	GUSTIN	D
GOLDSTON	C	GRABLE	B	GRAYSILL	C	GROSECLOSE	C	GUSTSPRING	B
GOLDSTREAM	D	GRACEMONT	C	GRAZER	C	GROSS	C	GUTHRIE	D
GOLDSTREAM, THAWED	B	GRACEMORE	C	GREAT BEND	E	GROSSWELL	C	GUY	B
GOLDUST	C	GRACEVILLE	B	GREDGE	D	GROTON	A	GUYAN	C
GOLDVALE	B	GRADCO	C	GREEN BLUFF	E	GROTTE	B	GUYANDOTTE	B
GOLDVALE, NONSTONY	C	GRADDN	C	GREEN CANYON	B	GPTTO	A	GUYTON	D
GOLDVEIN	C	GRADY	D	GREEN RIVER	C	GROUSECREEK	B	GWENA	D
GOLDYKE	D	GRAFEN	B	GREEN RIVER.	F	GROUSEVILLE	C	GWIN	D
GOLETA	B	GRAFF	D	STRONGLY SALINE		GROVE	A	GWIN, GRAVELLY	C
GOLLIAD	C	GRAHAM	D	GREEN RIVER.	F	GROVECITY	B	GWINLY	D
GOLLAMER	D	GRAIL	C	FLOODED		GROVENA	B	GWINNETT	B
GOLSUM	C	GRAINDLA	D	GREENBRAE	C	GROVER	B	GYMER	C
GOLTRY	A	GRALEY	D	GREENBRIAR	E	GROVETON	B	GYNELLE	A
GOLVA	B	GRALIC	B	GREENCREEK	B	GROWDEN	C	GYPNEVEE	B
GOMERY	B	GRAN	D	GREENDALE	F	GROWLER	B	GYSTRUM	C
GOMEZ	B	GRANATH	B	GREENE	R	GROWTON	B	HAAR	D
GONVICK	B	GRANBY	A/D	GREENFIELD	B	GRUBBS	D	HAARVAR	D
GONZAGA	C	GRANDE RONDE	D	GREENFIELD.	C	GRUBSTAKE	B	HACCKE	C
GOOCH	D	GRANDFIELD	B	HARDPAN		GRUENE	D	HACK	B
GODDING	D	GRANDMORE	B	SUBSTRATUM		GRULLA	D	HACKBERRY	B
GODDINGTON	D	GRANDPON	B	GREENHALGH	B	GRUMMIT	D	HACKERS	B
GOODLAND	B	GRANDVIEW	C	GREENHORN	D	GRUNDY	C	HACKROY	D
GOODLOW	B	GRANDVIEW, DRAINED	B	GREENLEAF	E	GRUVER	C	HACKWOOD	B
GOODMAN	B	GRANER	B	GREENLEE	B	GRYGLA	B/D	HADAR	B
GOODNIGHT	A	GRANGE	C	GREENMAN	C	GSCHWEND	B	HADENCREEK	B
GODDPASTER	D	GRANGEMONT	C	GREENOUGH	B	GUADALUPE	B	HADES	B
GODDPICH	B	GRANGEVILLE.	B	GREENSON	C	GUAJE	D	HADLEY	B
GODDSPRINGS	D	DRAINED, SLOPING		GREENTON	C	GUAM	D	HADELVILLE	B
GOODWILL	B	GRANGEVILLE.	C	GREENVILLE	B	GUAMANI	B	HAFLINGER	A
GOODWIN	B	SALINE-ALKALI.		GREENVINE	D	GUANABANO	C	HAGEN	A
GOODLAWAY	C	WET		GREENWATER	A	GUANAJIBO	C	HAGENBARTH	B
GOOSE CREEK	B	GRANGEVILLE.	B	GREENWAY	B	GUANICA	D	HAGER	D
GOOSE CREEK, WET	C	SALINE-ALKALI		GREENWOOD	A/D	GUARD	C	HAGERMAN	C
GOOSE LAKE	D	GRANGEVILLE.	B	GREHALEM	B	GUARDLAKE	A	HAGERSTOWN	C
GOOSEBURY	B	MODERATELY WET		GRELL	D	GUAYABO	A	HAGGA	D

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

MAGGA, SALINE-ALKALI	C	HANIPDE, BEDROCK SUBSTRATUM	C	MARSHA	P	HAWI	B	HEIMDAL	B
MAGGERTY	B	HANIS	C	MARSHLOW	C	HAWICK	A	HEINSAW	C
MAGSTADT	C	HANKINS	C	MARSTINE	C	HAWKEYE	A	HEISETON	B
MAGUE	A	HANKS	B	MARSTON	B	HAWKINS	C	HEISETON, STONY	C
HAIG	C/D	HANKSVILLE	D	MART	D	HAWKSBILL	B	HEISETON,	C
HAIGHTS	B	HANKSVILLE,	C	MART CAMP	D	HAWKSNEST	C/D	SALINE-ALKALI	B
HAIKU	B	NONFLOODED	F	MARTER	C	HAWKSPRINGS	B	HEISLER	B
HAILMAN	B	HANLON	F	MARTFORD	A	HAWKSTONE	B	HEIST	B
HAIRE	C	HANLY	A	MARTIG	B	HAWLEY	B	HEITT	C
HAIRE, BEDROCK SUBSTRATUM	D	HANNA	A	MARTILL	C	HAWSLEY	A	HEIZER	D
HAKKER	C	HANNAHATCHEE	B	MARTLAND	B	HAXTUN	B	HELDT	C
HALACAN	D	HANNING	B	MARTLESS	B	HAYBOURNE	B	HELEMAND	B
HALAWA	B	HANO	C	MARTLETON	F	HAYCRIK	C	HELENA	C
HALBERT	D	HANDOVER	C	MARTNIT	C	HAYDEN	B	HELENDALE	B
HALCOTT	C/D	HANS	C	MARTSBURG	P/D	HAYESTON	B	HELLGATE	B
HALDER	C	HANSEL	C	MARTSELLS	B	HAYESVILLE	B	HELLMAN	C
HALE	D	HANSKA	B/D	MARTSHORN	B	HAYESVILLE, STONY	C	HELP	D
HALE, DRAINED	C	HANSON	D/D	MARTVILLE	C	HAYFIELD	C	HELMER	C
HALEDON	C	HANTHO	B	MARTWELL	D	HAYFORD	B	HELMER, GRAVELLY	D
HALEIWA	B	HANTZ	D	MARVARD	F	HAYHOOK	F	SUBSOIL	C
HALEY	B	HANTZ, DRY	C	MARVESTER	B	HAYMARKET	D	HELMER, THIN	D
HALF MOON	B	HAP	B	MARVEY	B	HAYMOND	B	SURFACE	B
HALFADAY	A	HAPGOOD	B	MARVYF, BEDROCK SUBSTRATUM, DRY	C	HAYMONT	C	HELMFR, SEVERELY	D
HALFWAY	D	HAPJACK	D	MARWOOD	C	HAYNESS	B	ERODED	B
HALII	B	HAPNEY	C	MARWILL	B	HAYNIE	A	HELMICK	D
HALIIMAIL	B	HAPPLE	B	MASKINS	C	HAYPRESS	B	HELTER	B
HALL	B	HAPUR	D	MASSE	C	HAYRACK	C	HELVETIA	C
HALL RANCH	C	HARAHAN	D	MASSELL	D	HAYSPUR	D	HELY	C
HALLANDALE	B/D	HARAHILL	C	MASTINGS	B	HAYSUM	B	HEMBRE	B
HALLANDALE, TIDAL	D	HARANA	B	MAT	C	HAYTER	D	HEMCROSS	B
HALLCREEK	A	HARBORD	B	MATBORO	D	HAYTI	B	HEMINGFORD	B
HALLECK	C	HARCANY	B	MATCH	C	HAYWIRE	C	HEMPSTEAD	B
HALLECK, GRAVELLY SUBSTRATUM	B	HARCO	B	MATCH, GRAVELLY	D	HAYWOOD	B	HENCO	B/D
HALLETTVILLE	D	HARCOD	B/D	MATCH, THICK	C	HAZEL	C	HENDERSON	B
HALLISON	C	HARDEMAN	B	MATCHET	B	HAZELAIR	D	HENDON	C
HALLORAN	C	HARDESTY	B	OVERBLOWN, THICK	R	HAZEN	B	HENDRICKS	B
HALSEY	C/D	HARDHAT	R	SOLUM	C	HAZLEMURST	C	HENDY	C
HALSD	D	HARDING	D	MATCHET, GRAVELLY	C	HAZLETON	B	HENEFER	C
HANACER	A	HARDISTER	B	MATCHET, OVERBLOWN	C	HAZTON	D	HENHOIT	B
HANAKUAPOKO	B	HARDOL	B	MATCHET, COBBLY	C	HEADLEY	R	HENKIN	F
HANAR	A/D	HARDSCRABBLE	D	MATCHIE	C	HEADQUARTERS	B	HENLEY	C
HANBLEN	C	HARDTRIGGER	B	MATCHEMUS	D	HEAKE	D	HENLINE	C
HANBONE	B	HARDY	C	MATERTON	F	HEALDTON	F	HENNEL	C
HANBRIGHT	D	HARGILL	B	MATHAYAY	B	HEALING	F	HENNEKE	D
HANBUFG	B	HARGREAVE	C	MATHLEY	C	HEARNE	B	HENNEPIN	B
HANBY	C	HARJD	C	MATLIEF	C	HEARNE, GRADED	C	HENNESSY	B
HANDEN	B	HARKERS	C	MATMAKER	C	HEATH	C	HENNEWAY	B
HANEL	C	HARKEY	B	MATPEAK	C	HEATHCOAT	C	HENNEY	B
HANERLY	C	HARKNESS	C	MATTIE	C	HEATLY	A	HENNINGS	B
HAMILTON	B	HARLAN	B	MATTION	C	HEATCH	A	HENNINGSSEN	C
HAMLET	B	HARLEM	C	MATUR	C	HEATON	C	HENRIETTA	B/D
HAMLIN	B	HARLEM, CHANNELED	D	MATWAI	D	HEBBRONVILLE	B	HENRIEVILLE	B
HAMMACK	B	HARLESTON	C	MAUBSTADT	C	HEBER	A	HENRY	D
HAMMONTON	B	HARLINGEN	D	HAUG	E/D	HEBERT	D	HENSHAM	C
HAMPSHIRE	C	HARLOW	D	HAUGAN	B	HEBRON	R	HENSLEY	D
HAMPSON	C	HARMEML	C	HAULINGS	D	HECETA	D	HENSON	B
HAMRE	C/D	HARMONY	C	HAUNCHEE	D	HECHTMAN	D	HEPLER	C
HAMRUB	B	HARNEY	B	HAUZ	C	HECKER	B	HEPPSIE	D
HAMTAM	C	HAROL	B	HAVALA	C	HECKISON	D	HERAKLE	D
HANA	A	HARPER	D	HAVANA	B	HECLA	A	HERBERT	B
HANAGITA	D	HARPERSVILLE	D	HAVELOCK	B/D	HECTOR	D	HERBMAN	D
HANAKER	C	HARPEM	B	HAVEN	F	HEDGE	D	HERD	C
HANALEI	C	HARPOLE	B	HAVEDAD	F	HEDDOS	C	HEREFORD	B
HANAMAULU	B	HARPS	B/D	HAVEDAD,	C	HEDDX	C	HERITO	C
HANCEVILLE	B	HARPPSTER	B/D	MODERATELY SALINE	C	HEDRICK	B	HERKIMER	B
HAND	B	HARPT	B	HAYERHILL	C	HEDSTROM	B	HERLONG	D
HANDPAH	D	HARQUA	B	HAYERLY	C	HEDVILLE	D	HERP	C
HANDRAN	A	HARRAH	B	HAYERMOM	B	HEECHIE	B	HERMANTOWN	C
HANDBORD	D	HARRIET	C	HAYVERSON	B	HEELY	B	HERMERING	B
HANDY	C	HARRIMAN	B	HAYVILLAH	B	HEESER	B	HERMISTON	B
HANEY	B	HARRIMAN, WET	C	HAYVILLAH	C	HEFED	B	HERNON	A
HANFORD	B	HARRINGTON	C	HAYVILLON	B	HEFLIN	B	HERNANDEZ	B
HANGAARD	D	HARRIS	D	HAYVRE, SALINE	C	HEGLAR	R	HERNDON	B
HANGDO	B	HARRISBURG	C	HAYVRE, MODERATELY	B	HEGNE	D	HERO	B
HANGTOWN	B	HARRISON	B	WET	C	HEIDEL	B	HEROD	D
HANIPDE	B	HARRISVILLE	C	HAYVELON	C	HEIDEN	D	HERRICK	B
		HARROUN	D	HAW	B	HEIDTMAN	C	MERSH	B
		HARSAN	B			HEIGHTS	B/D	MERSHAL	D
						HEIL	D	MERTY	D

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

MESCH	B	HILLSBORO	B	HOLDERMAN	C	HOODYVIEW	B	HOWELL	C
MESPER	B	HILLSDALE	B	HOLDERNESS	C	HOOGDAL	C	HOWLAND	C
MESPERIA	B	HILLTO	B	HOLDINGFORD	C	HOOKS	B	HOWSON	C
MESPERUS	B	HILLWOOD	B	HOLDREGE	R	HOOKSAN	A	HOYE	C
MESSEL	B/D	HILMAR	D	HOLLILLIPAH	A	HOOKTON	C	HOYLETON	B
MESSELBERG	D	HILMAR, DRAINED	B	HOLLAND	B	HOOLEHUA	B	HOYPUS	A
MESSELTINE	B	HILMOE	C	HOLLANDLAKE	B	HOOLY	C	HOYTVILLE	C/D
MESSING	B	HILD	A	HOLLINGER	E	HOOPAL	D	HUACHUCA	D
MESSLAN	C	HILDOLD	D	HOLLIS	C/D	HODPER	D	HUALAPAI	C
MESSON	C	HILT	B	HOLLISTER	D	HODPESTON	B	HUE	B
METERVA	C	HILTON	B	HOLLOWAN	D	HOOPHITE	D	HUBBARD	A
HETTINGER	C/D	HINCKLEY	A	HOLLOWEX	B	HOCOSAN	B	HUBBARDTON	B
HEUSSER	C	HINDES	C	HOLLOW	C	HOOSEGOW	B	HUBBELL	D
HEUVELTON	C	HINESBURG	C	HOLLOWAY	C	HOOSIC	A	HUBERLY	D
HEWITT	D	HINKER	C	HOLLOWTREE	C	HOOSIERVILLE	C	HUBERT	B
HEXT	B	HINKLE	D	HOLLY	D	HOOSIMBIN	B/D	HUBLERSBURG	E
HEYDER	B	HINMAN	C	HOLLY, PONDED	D	HODT	D	HUCKLEBERRY	C
HEYDLAUFF	B	HINSDALE	D	HOLLY SPRINGS	D	HODTEN	D	HUCKLEBERRY, HIGH	B
HEYTOU	B	HIRAMSBURG	C	HOLLYWELL	B	HOPCO	C	RAINFALL	D
HEZEL	B	HIRIDGE	D	HOLLYWOOD	D	HOPDRAW	A	MUDNUT	B
HI VISTA	C	HIRSCHDALE	C	HOLMAN	A	HOPEKA	D	MUDSON	C
HIARC	C	HISEGA	C	HOLMDEL	C	HOPKINS	B	MUECO	C
HIBAR	C	HISKEY	B	HOLMES	B	HOPLAND	B	MUEL	A
HIBBARD	C	HISLE	D	HOLOHAN	B	HOPLEY	B	MUENEME	C
HIBBING	C	HITCHCOCK	B	HOLOHUA	B	HOPSONVILLE	C	MUENEME,	B
HIBERNIA	C	HITILD	A	HOLOPAW	B/D	HODUIAM	B	MODERATELY WET	B
HISRITEN	B	HITT	B	HOLOPAW,	C	HORD	B	MUENEME, DRAINED	B
HICKMAN	B	HIVAL	D	DEPRESSIONAL	C	HOREB	C	MUERFAND	D
HICKORY	C	HIVAN	D	HOLOPAW,	D	HOREB, GRAVELLY	B	MUEY	D
HICKS	B	HIVASSEE	B	FREQUENTLY	B	SUBSTRATUM	B	MUFFINE	B
HICKSVILLE	B	HIWODD	A	FLOODED	A	HORNELL	D	MUFFMAN	B
HICKSVILLE, BEDROCK SUBSTRATUM	C	HIXTON	B	HOLSINE	E	HORNING	B	MUFFTON	B
HICOTA	B	HOADLY	C	HOLSTEIN	B	HORNITOS	D	MUGGINS	C
HIDALGO	B	HOBACKER	B	HOLSTON	B	HORNSBY	C	MUGHES	B
HIDATSA	B	HOBAN	E	HOLT	B	HORNSVILLE	C	HUGHESVILLE	C
HIDEAWAY	D	HOBBS	B	HOLTER	B	HORROCKS	B	MUGD	B
HIDEWOOD	B/D	HOBCAW	B	HOLTLE	B	HORSECAMP	D	MUGUS	B
HIERRO	B	HOBE	A	HOLTON	C	HORSERIDGE	B	MUGUSTON	D
HIGGINS	D	HOBERG	C	HOLTVILLE	C	HORSESHOE	C	MUICHICA	C
HIGGINSVILLE	C	HOBIT	C	HOLYOKE	C/D	HORSETHIEF	B	MUICHICA, PONDED	D
HIGH GAP	C	HOBO	D	HOMA	C	HORSLEY	D	MUIKAU	A
HIGHAMS	D	HOBOG	D	HOMECAMP	C	HORST	B	MUKILL	E
HIGHBANK	C	HOBOONY	D	HOMELAKE	B	HORTONVILLE	B	MULETT	C
HIGHCAMP	B	HOBSON	C	HOMELAND	C	HOSKIN	C	HULLS	B
HIGHFIELD	B	HOBUCKEN	D	HOMER	B	HOSKINNINI	D	HULLT	B
HIGHMORN	B	HOCCAR	D	HOMESTAKE	C	HOSLEY	D	MULUA	D
HIGHMORE	B	HOCHHEIM	B	HOMESTEAD	B	HOSMER	C	MUM	B
HIGHPOINT	D	HOCKINSON	D	HOMEMOOD	C	HOSSICK	B	MUMACAD	B
HIGHROCK	D	HOCKINSON,	C	HOMME	C	HOSTAGE	B	MUMATAS	B
HIGHTOWER	C	MODERATELY WET	B	HOMME, MODERATELY	B	HOT LAKE	C	MUMBARGER	B
HIGHWOOD	C	HOCKINSON, DRAINED	B	WET	B	HOTAW	C	MUMBIG	C
HIHIMANU	B	HOCKLEY	C	HOMDSASSA	D	HOTCREEK	D	MUMBIRD	B
HIBNER	C	HOCKLEY, GRADED	D	HOMNAU	C	HOTEL	C	MUMBOLDT	D
HIKO PEAK	B	HODA	C	HONCUT	B	HOTSPPRINGS	B	MUMBOLDT,	B
HIKO SPRINGS	B	HODEDD	C	HONDALE	D	HOUEK	B	MODERATELY WET,	B
HILAIRE	B	HODENPYL	B	HONDDMO	B	HOUGH	B	SALINE-ALKALI	B
HILDBRECHT	C	HODGE	A	HONDDEYE	B	HOUGHTON	A/D	MUMBOLDT,	B
HILDRETH	D	HODGINS	B	HONEYDEW	B	HOUGHTON, PONDED	D	MODERATELY WET,	B
HILEA	D	HODGSON	B	HONEYGROVE	C	HOUGHTONVILLE	C	SALINE	C
HILES	B	HOEHNE	A	HONEYJONES	A	HOUK	B	MUMBOLDT, DRAINED,	B
HILGER	B	HOFFLAND	D	HONEYVILLE	D	HOULA	C	STRONGLY SALINE	B
HILGRAVE	B	HOFFMANVILLE	D	HONKER	D	HOULKA	D	MUMBOLDT, DRAINED,	B
HILIGHT	D	HOFFSTADT	B	HONLAK	B	HOURGLASS	B	NONSALINE	B
HILINE	D	HOFLY	C	HONLAK, DRAINED	C	HOUSE MOUNTAIN	D	MUMBOLDT,	B
HILLBRICK	D	HOGADERO	B	HONLU	B	HOUSER	D	MODERATELY WET	B
HILLCO	B	HOGANSBURG	B	HONN	B	HOUSEROCK	D	MUMBOLDT, DRAINED	B
HILLEMANN	C	HOGBACK	C	HONOBIA	C	HOUSTAKE	C	MUNDUN	B
HILLERY	C	HOGG	D	HONDKAA	A	HOUSTON	D	MUME	C
HILLET	B/D	HOGMALAT	D	HONDQUA	B	HOUSTON BLACK	D	MUMESTON	C/D
HILLFIELD	B	HOGRIS	B	HONDNAMU	A	HOVDE	D	MUNKER	C
HILLGATE	D	HOH	B	HONDNEGAM	B	HOVEN	D	MUMINGTON	C
HILLIARD	B	HOHMANN	C	HONDOLIULI	C	HOVENWEEP	B	MUMPHREYS	B
HILLIARD, MODERATELY WELL DRAINED	C	HOKO	C	HONTAS	B	HOVERT	D	MUMPTULIPS	B
HILLON	C	HOLBORN	C	HONTOON	B/D	HOVEY	C	MUMSKEL	C
		HOLBROOK	B	HONUAULU	A	HOWARD	A	MUN	B
		HOLCOMB	D	HODD	B	HOWARDSVILLE	A	MUNCHBACK	D
		HOLDAWAY	D	HODDLE	B	HOWCAN	B	MUNDRAW	D
		HOLDEN	B	HODDDO	D	HOWCREE	C	MUNEWILL	B
		HOLDER	B	HODDSPORT	B	HOWE	C	MUNGRY	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

MUNNTON	C	ILDECARE	B	IPISH	C	JACAGUAS	B	JEMEMY	D
MUNSINGER	B	ILDEFONSO	B	IPSON	B	JACANA	D	JERLEY	C
HUNTERS	B	ILES	C	IPSWICH	D	JACEE	C	JELLICO	C
HUNTERSVILLE	B	ILIFF	C	IRA	C	JACINTO	B	JEMEZ	C
HUNTIMER	C	ILILILI	D	IPAAN	E	JACK CREEK	A	JENA	B
HUNTING	C	ILION	D	IREDELL	C/D	JACKET	C	JENKINS	C
HUNTINGTON	B	ILLABOT	C	IRELAND	C	JACKLAND	D	JENKINSON	D
HUNTMOUNT	B	ILLAHEE	P	IRENE	B	JACKMAN	B	JENKS	B
HUNTSPOCK	B	ILLER	E	IPETEBA	B	JACKKNIFE	C	JENNESS	B
HUNTSBURG	D	ILLITO	D	IRIGUL	D	JACKPORT	D	JENNINGS	C
HUNTSVILLE	B	ILTON	C	IRIM	C	JACKPOT	C	JENNY	D
HUPP	B	ILWACO	B	IRMULCO	B	JACKS	C	JENOR	C
MURDS	B	IMA	B	IROCK	C	JACKSON	E	JERAG	D
HURLBUT	C	IMBLER	B	IRON BLOSSOM	C	JACKTONE	D	JERAULD	D
MURLEY	D	IMLAY	D	IRON MOUNTAIN	D	JACOB	D	JERICHO	D
MURRICANE	C	IMMIG	C	IRON RIVER	B	JACOBSEN	D	JEROME	D
MURRY BACK	B	IMMIGRANT	C	IPONCO	B	JACDREY	C	JERRY	C
MURRYBACK	B	IMMOKALEE	E/D	IRONDALE	C	JACOT	B	JERRYSLU	C
MURST	D	IMMOKALEE.	D	IRONDYKE	B	JACQUES	C	JERU	B
MURWAL	E	DEPRESSIONAL	D	IRONSPPINGS	B	JACQUITH	C	JERYAL	B
MUSE	D	IMDGENE	D	IRONTON	C	JACRATZ	D	JESPEL	D
MUSKA	D	IMONIL	B	IRQUOIS	B/D	JACWIN	B	JESSE CAMP	B
MUSSA	D	IMPACT	A	IRRAWADDY	C	JADIS	B	JESSIETOWN	B
MUSSA, CLAYEY	C	IMPERIAL	D	IRRIGON	C	JAJA	B	JESSO	C
SUBSTRATUM		INARAJAN	D	IRSDN	D	JAGUEYES	B	JESSUP	C
MUSSA, MODERATELY	C	INARAJAN.	C	IRVINE	D	JAL	E	JETCOP	D
VET		STRATIFIED		IRVINGTON	C	JALMAR	A	JETSTER	C
MUSSA, DRAINED	B	SUBSTRATUM		IRWIN	D	JAMES	D	JETT	B
MUSSELL	R	INAVALE	A	ISAAC	C	JAMES CANYON	C	JEVETS	C
MUSSMAN	D	INCELL	D	ISABELLA	E	JAMES CANYON.	B	JEWETT	B
MUSUM	R	INCHAU	C	ISAN	A/D	DRAINED		JIGGS	C
MUTCHINSON	C	INCHELIUM	E	ISANTI	A/D	JAMESTON	C/D	JIGSAW	C
MUTCHLEY	D	INCY	A	ISEELL	B	JANISE	C	JILSON	D
MUTSON	B	INDART	C	ISELLA	B	JANISE, OVERBLOWN.	B	JIM	C
MUTT	D	INDEX	A	ISPI PISHI	C	DRAINED		JIMBO	E
HUTTON	D	INDIAHOMA	D	ISHPEMING	A	JANSEN	B	JIMCREEK	C
MUXLEY	C	INDIAN CREEK	D	ISIDOR	D	JANUDE	B	JIMEK	C
MUYSINK	B	INDIANO	C	ISKNAT	C	JANUDE, CLAY	C	JIMENEZ	C
MYALL	C	INDIANOLA	A	ISKNAT, CJOOL	D	SUBSTRATUM		JIMLAKE	B
MYANNIS	B	INDIO	B	ISLAND	E	JARAB	D	JIMMERSON	C
MYAS	B	INDLETON	B	ISLES	D	JARBOE	D	JIMSAGE	C
MYATTVILLE	C	INDUS	D	ISLES, SLJUGH	A/D	JARDIN	D	JINTOWN	C
HYDABURG	D	INEZ	D	ISLDYF	E	JAREALES	D	JIPPER	B
HYDE	B/D	INFERNAL	D	ISMAV	B	JARITA	C	JIVAS	B
HYDER	D	INGALLS	B	ISPC	C	JARMILLO	B	JOACHEM	D
HYDRO	C	INGENIO	B	ISCLDE	A	JAROLA	C	JOB	C
HYE	B	INGERSOLL	B	ISOM	B	JARSDO	B	JOBDS	C
HYLDC	D	INGRAM	D	ISTER	C	JARRE	B	JOBPEAK	D
MYMAS	D	INKLER	B	ISTOKPOGA	B/D	JARRON	D	JOCAL	B
HYPRAIRIE	B	INKDM	D	ITANO	C	JARVIS	E	JOCITY	B
HYRUM	B	INKDM, DRAINED	C	ITASCA	B	JASCO	D	JOCITY, LDAMY	C
MYSHAM	D	INKOSR	D	ITAT	E	JASON	D	SURFACE	
HYSHOT	D	INKS	D	ITCA	D	JASPER	B	JOCKO	B
MYTOP	D	INKSTER	E	ITPACA	C	JAUCAS	A	JOCERO	B
MYZEN	D	INLDW	C	ITMANN	C	JAUCAS, SALINE	C	JOEL	B
IAD	B	INMACHUK	D	ITNE	A	JAURIGA	B	JOEMRE	B
IBERIA	D	INMAN	C	ITSWOODT	B	JAVA	B	JOENEY	D
ICARIA	D	INMO	A	IUKA	C	JAWBDNE	D	JOES	B
ICENE	D	INNINGER	C	IVA	C	JAY	C	JOEVAR	B
ICESLEW	D	INDEPENDENCE	B	IVAN	B	JAYAR	C	JOHNS	D
ICMBDD	D	INSAK	D	IVANELL	C	JAYBEE	D	JOHNSBURG	C
ICMETUCKNEE	D	INSIDERT	C	IVANHCE	D	JAYEL	D	JOHNSON	B
ICICLE	B	INSKIP	C	IVERP	B	JAYEM	R	JOHNSTON	D
IDA	B	INSULA	D	IVERSEN	C	JAYNES	D	JOHNSTOWN	B
IDABEL	B	INTERIOR	B	IVES	B	JEAGER	C	JOHNSWOODD	D
IDAHOME	B	INTON	P	IVES, WET	D	JEAN	A	JOHNTOM	B
IDAMONT	B	INVERNESS	B	IVIE	A	JEAN LAKE	B	JOICE	D
IDEE	C	INVERSHIEL	C	IVINS	C	JEANERETTE	B	JOINEP	D
IDLEWILD	D	INVILLE	B	IVYWILD	C	JEBE	B	JOKODOWSKI	B
IDLEWILD, DRAINED	C	IO	E	IXIAN	C	JEBD	B	JOLAN	C
IDMON	B	IDLEAU	C	IFYERS	D	JEDBURG	C	JOLIET	D
IGDELL	C	IDNA	B	I2AGORA	C	JEDD	C	JOLLY	C
IGERT	C	IDNIA	B	I7AR	D	JEDDITO	C	JONALE	B
IGNACIO	C	IOSCO	B	I2EE	C	JEDDITO.	R	JONAS	B
IGO	D	IDSEPA	D	I2D	A	SALINE-ALKALI		JONATHAN	B
IGUALDAD	D	IDTLA	B	I2OD	D	JFDDO	C/D	JONCA	C
IHLEN	B	IDPAGE	A	I2USER	B	JEFFERS	B/D	JONDA	B
IJAM	D	IDPAND	C	I2AFU	B	JEFFERSON	B	JONES	B
ILACHETOMEL	D	IDPAVA	B	I2ABU, WET	C	JEFFREY	B	JONESVILLE	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

Exhibit A-1, continued: Hydrologic soil groups for United States soils

JONNIC	C	KAHANA	B	KAPLAN	D	KEEI	D	KERMIT	A
JOPLIN	C	KAHANUI	D	KAPOD	B	KEEKEE	B	KERNAN	C
JOPPA	B	KAHLER	D	KAPOWSIN	D	KEEL	C	KERR	B
JORAIBI	B	KAHLDTUS	B	KAPTURE	B	KEELDAR	B	KERRDAM	C
JORDAN	D	KAHOLA	B	KAPUMIKANI	D	KEELE	B	KERRFIELD	D
JORGE	B	KAHUA	D	KARAMIN	A	KEELER	B	KERRICK	B
JORNAMAM	B	KADERS	B	KARANKAWA	D	KEELINE	B	KERRYVILLE	C
JORY	B	KAIKLI	D	KARBANA	D	KEENE	C	KERSHAV	A
JORY, STONY	C	KAILUA	A	KARCAL	D	KEENO	C	KERSICK	D
JOSBURG	C	KAIMU	A	KARDE	B	KEESE	D	KERSTON	A/D
JOSEPH	C	KAINALIU	A	KARHEEN	D	KEESEMA	C	KERT	C
JOSEPHINE	B	KAIPOIOI	B	KARLAN	C	KEESIAN	B	KESSLER	C
JOSHUA	C	KAIWIKI	A	KARLIN	A	KEETER	C	KESSON	D
JOSIE	B	KALAE	B	KARLO	B	KEEWATIN	C	KESTERSON	D
JOSLIN	B	KALALOCH	B	KARLSBURG	B	KEG	B	KESWICK	C
JOSSET	C	KALAMA	C	KARLSRUHE	E	KEGEL	D	KETCHLY	B
JOURDANTON	B	KALAMAZOD	B	KARLSTAD	A	KEGEL, DRAINED	C	KETCHUM	B
JOWEC	D	KALAPA	B	KARLUK	D	KEGONSA	B	KETONA	D
JOY	B	KALAUPAPA	D	KARPA	E	KEHAR	D	KETTENBACH	C
JUAB	B	KALEETAN	B	KARNAK	D	KEMENA	C	KETTLE	B
JUANA DIAZ	B	KALEETAN, TILL	C	KARNES	E	KEMOE	B	KETTLEBELLY	B
JUBILEE	D	SUBSTRATUM		KAROC	B	KEIGLEY	E	KETTLEMAN	C
JUBILEE, DRAINED	B	KALIFONSKY	D	KARPP	D	KEISER	B	KETTLEMAN,	B
JUDA	B	KALIGA	E/D	KARRO	B	KEITH	B	GPVELLY	
JUDD	C	KALIGA, FLOODED	D	KARS	A	KEITHVILLE	C	KETTNER	D
JUDELL	B	KALIHI	D	KARSNER	D	KEKAMA	E	KEUTERVILLE	B
JUDICE	D	KALISPELL	B	KARTA	B	KEKAKE	D	KEVANTON	B
JUDITH	B	KALKASKA	A	KARTAR	B	KEKANAWA	B	KEVIN	C
JUDKINS	C	KALLIO	C	KASEBERG	D	KELK	C	KEWACH	C
JUDSON	B	KALMARVILLE	B/D	KASHVITNA	B	KELLER	C	KEWAUNEE	C
JUDY	C	KALMIA	B	KASKI	E	KELLERBUTTE	E	KEWEENAW	A
JUG	B	KALO	C	KASOTA	C	KELLY	D	KEYA	B
JUGET	D	KALOKO	D	KASSLER	A	KELSEY	B	KEYES	D
JUGHANDLE	B	KALONA	C	KASSON	C	KELSO	C	KEYESPOINT	D
JUGSON	C	KALSIN	D	KATAMA	B	KELTNER	B	KEYNER	D
JULES	B	KALSTED	B	KATEMCY	C	KELYYS	B	KEYPORT	C
JULESBURG	B	KAMACK	B	KATHER	B	KELVIN	C	KEYSTONE	A
JULIN	D	KAMAKDA	B	KATO	B/D	KEMAH	D	KEZAN	D
JUMBO	B	KAMAN	D	KATSEANES	D	KEMAN	B	KEZAR	C
JUMPCREEK	C	KANADA	B	KATULA	C	KEMMERER	C	KIAKUS	C
JUMPE	B	KANAOLE	B	KATY	D	KEMOD	B	KIAN	C
JUMPER	C	KANATO	C	KATYBLAY	B	KEMP	C	KIAWAH	B/D
JUMPMORE	B	KAMAY	D	KAUDER	D	KEMPSVILLE	E	KIBBIE	B
JUMPOFF	C	KAMELA	C	KAUFMAN	D	KENAI	C	KIBESILLAH	C
JUNALUSKA	B	KAMIE	B	KAUKAUNA	C	KENANSVILLE	A	KICKAPOO	B
JUNCAL	C	KAMPVILLE	C	KAUPD	A	KENDAIA	C	KICKERVILLE	B
JUNCOS	D	KAMRAR	B	KAUPPI	B	KENDALL	B	KIDD	D
JUNCTION	B	KANACKKEY	D	KAVE TT	D	KENDALLVILLE	B	KIDDER	B
JUNEAU	B	KANAKA	B	KAVON	B	KENDRICK	A	KIDMAN	B
JUNG	D	KANAPAHA	B/D	KAWA IMAE	C	KENEFFICK	B	KIEHL	B
JUNGO	B	KANARANZI	B	KAWA IHAPAI	B	KENESAV	B	KIESEL	C
JUNIPERBUTE	A	KANARRA	D	KAMBANGAM	D	KENMOOR	B	KIETZKE	D
JUNIPERO	B	KANASKAT	B	KAWICH	A	KENN	B	KIEV	B
JUNIUS	C	KANAWHA	B	KAWKAWLIN	C	KENNAN	B	KIKI	C
JUNKETT	C	KANDALY	A	KAYHINE	C	KENNEBEC	B	KIKONI	B
JUND	A	KANDIK	B	KAYD	E	KENNER	D	KILAGA	C
JUNQUITOS	C	KANDOTA	B	KEAAU	D	KENNEWICK	B	KILARC	D
JUNTURA	D	KANE	B	KEAHUA	B	KENNEY	A	KILAUEA	B
JUPIITER	B/D	KANEBREAK	C	KEALAKEKUA	A	KENNEY LAKE	C	KILBURN	B
JURA	D	KANEOME	B	KEALIA	D	KEND	D	KILCHIS	D
JURYANNAH	C	KANEPUU	B	KEANSBURG	D	KENDONA	D	KILDOR	C
JUSTESEN	C	KANER	A	KEAPL	C	KENDOTRAIL	C	KILFOIL	C
JUSTESEN, LOAMY	B	KANG	C	KEARNS	B	KENRAY	A	KILGORE	D
SUBSTRATUM		KANGAS	A	KFARSARGE	P	KENSAL	B	KILKENNY	B
JUSTIN	B	KANID	B	KEATING	C	KENSETT	B	KILLARNEY	C
JUVA	B	KANIKSU	B	KEAUKAMA	D	KENSPUR	B	KILLBUCK	C/D
JUVAN	D	KANIHA	C	KEAWAKAPU	B	KENT	D	KILLDUFF	B
KAALUALU	A	KANKAKEE	B	KEBLEP	B	KENUSKY	D	KILLEY	D
KACHEMAK	B	KANLEE	C	KECH	D	KENYON	B	KILLEY, MODERATELY	C
KACHESS	B	KANONA	D	KECKC	B	KEO	B	WET	
KADE	D	KANOSH	C	KECKSRDAD	C	KEOKUK	B	KILLINGTON	D
KADLETZ	B	KANTISHNA	D	KEDA	B	KEOMAH	C	KILLPACK	C
KADOKA	B	KANUTCHAN	D	KEDDIE	C	KEOTA	B	KILMANAGH	C
KAENA	D	KANZA	D	KEEDRON	C	KEOWNS	B/D	KILMER	C
KAFING	B	KAPAA	B	KEE	E	KEPLER	C	KILMERQUE	C
KAGMAN	C	KAPAPALA	B	KEECHELUS	C	KERBER	B	KILN	D
KAGMAN, VERY	B	KAPAPALA, BEDROCK	C	KEECHI	C	KERBY	B	KILOA	A
GRAVELLY		SUBSTRATUM		KEEFA	B	KERHAYDEN	B	KILOHANA	A
KAHALUU	D	KAPIN	C	KEEFERS	C	KERL	B	KILOWAN	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

KILWINNING	D	KITTTITAS	D	KODRA	C	KRESSON	C	LACONNER	C
KIM	B	KITTTITAS, DRAINED	C	KOEHLER	C	KREYENHAGEN	B	LACODCHEE	D
KIM, SALINE	C	KITTREDGE	B	KOELE	B	KRIER	D	LACOSTE	C
KIMAMA	B	KITTSOON	C	KOEPKE	B	KPIEST	E	LACOTA	B/D
KIMBALL	D	KIYA	A	KOEPFLING	C	KFON	D	LACRESCENT	B
KIMBERLINA	B	KIWANIS	P	KOETHER	D	KROTO	B	LACROL	D
KIMBERLY	B	KIZHUYAK	P	KOFA	D	KRUBATE	B	LACY	D
KIMBROUGH	D	KJAR	D	KOFA, SALINE	C	KRUEGER	B	LADD	B
KIMMERLING	D	KLABEP	D	KOFFGO	B	KRUM	D	LADELLE	B
KIND	C	KLABER, DRAINED	C	KOGISH	D	KRUSE	B	LADERLY	C
KINDER	B	KLADNICK	A	KOHALA	B	KUBE	E	LADNER	D
KINA	D	KLADNICK, STONY	B	KOKAN	A	KUBLER	C	LADOGA	B
KINAN	B	KLAMATH	D	KOKEE	B	KUBLI	D	LADRON	B
KINCHELDE	D	KLANELNEECHENA	D	KOKERNOT	C	KUCERA	B	LADUE	B
KINCO	A	KLANELNEECHENA,	C	KOKO	B	KUCK	C	LADYCOMB	D
KINDER	C	LACUSTRINE		KOKKAHI	D	KUDLAC	D	LADYSMITH	D
KINDIG	B	SUBSTRATUM		KOKOKAHI, STONY	B	KUPL	D	LAFE	D
KINDY	C	KLAPATCHE	C	KOKOMO	B/D	KUKAIAU	A	LAFITTE	D
KINESAVA	B	KLAUS	C	KOLAR	D	KUKAIAU, BEDROCK	C	LAG	B
KINGDON	B	KLAWASI	D	KOLBERG	C	SUBSTRATUM		LAGITOS	C
KINGFISHER	B	KLAWASI,	B	KOLEKOLE	C	KULA	B	LAGLORIA	B
KINGPORN	D	LACUSTRINE		KOLIN	C	KULLIT	B	LAGNAF	B
KINGILE	C	SUBSTRATUM		KOLLS	D	KULSHAN	C	LAGONDA	C
KINGINGHAM	C	KLAWATTI	C	KOLLUTUK	D	KUMA	R	LAGRANGE	D
KINGMAN	D	KLAWHOP	B	KOLDA	C	KUNATON	D	LAGROSS	D
KINGMONT	B	KLAYENT	C	KOLOB	B	KUNAYOSH	A	LAGUNITA	A
KINGS	D	KLECKNER	C	KOLOR, STONY	C	KUNIA	B	LAGUNITA, WET	C
KINGSBURY	D	KLEINBUSH	C	KOLOKOLD	E	KUNUWEIA	B	LAHAINA	B
KINGSODWN	B	KLEJ	B	KOLOPOKI	E	KUNZ	B	LAHONTAN	D
KINGSZLAND	A/D	KLICKEK	C	KOMO	E	KUNZLER	B	LAHRITY	C
KINGSLEY	B	KLICKITAT	E	KONA	D	KUPREANOF	B	LAIDIG	C
KINGSPOINT	B	KLICKSON	B	KONAWA	E	KUPREANOF,	C	LAILDLAW	C
KINGSTON	B	KLIN, CORBLY	E	KONEPT	C	MODERATELY WET		LAIL	C
KINGSVILLE	A/D	KLIN, PROTECTED	C	KONEPT, DRAINED	C	KURER	A	LAIRD	B
KINGTAIN	B	KLINESVILLE	C/D	KONNER	D	KURO	D	LAIRDSVILLE	D
KINKEAD	C	KLINGER	B	KONNER, DRAINED	C	KURTH	C	LAJARA	D
KINKEL	C	KLISKON	C	KONCTI	C	KURTZ	C	LAJITAS	D
KINKEL, GRAVELLY	B	KLISTAN	B	KONCTI, STONY	B	KUSHNEAHIN	B	LAKE	A
KINKOPA	D	KLONDIKE	D	KONSIL	B	KUSKOKWIM	D	LAKE, CLAYEY	C
KINMAN	C	KLONE	E	KOLLAU	C	KUSLINA	D	SURFACE	
KINNEAR	B	KLOOCHMAN	C	KOONICH	A	KUTCH	C	LAKE CHARLES	D
KINNEY	B	KLOOTCH	C	KOONTZ	D	KUTLER	C	LAKE CREEK	C
KINROSS	A/D	KLOOTCHIE	B	KOOSHAREM	P	KUY	A	LAKE JANEE	B
KINSMAN	C	KLOTEN	D	KOOSKIA	C	KVICHAK	B	LAKEFIELD	B
KINSTON	B/D	KLUG	B	KOCOTENAI	E	KWEO	A	LAKEHELEN	C
KINTA	D	KLUM	E	KOPIE	D	KYBURZ	D	LAKEHURST	A
KINTON	C	KLUMP	B	KOPPEPL	E	KYDAKA	B	LAKELAND	A
KINZEL	B	KLUTINA	B	KOPPEP	A	KYDESTE	D	LAKEMONT	D
KIDMATIA	A	KNAPKE	B	KORCMEA	B	KYLF	D	LAKEPORT	D
KIDNA	B	KNAPPA	B	KORENT	E	KYLER	E	LAKESHORE	D
KIOTE	B	KNAPPTON	B	KORNYAN	E	KZIN	D	LAKESIDE	B
KIPER	B	KNEELAND	C	KOROPAGO	C	LA BRIER	D	LAKESOL	B
KIPLING	D	KNEP	C	KORONIS	E	LA FARGE	E	LAKETON	C
KIPPEN	A	KNICKERBOCKER	A	KORTTY	B	LA FONDA	E	LAKEVIEW	C
KIPSON	D	KNIESLEY	C	KOSCIUSKO	E	LA GRANDE	C	LAKEWIN	B
KIRBY	A	KNIFFIN	C	KOSETH	B	LA HOGUE	B	LAKEWOOD	A
KIRBYVILLE	B	KNIGHT	B/D	KOSPOD	D	LA LANDE	E	LAKI	B
KIRK	D	KNIK	B	KESSE	B	LA PALMA	B	LAKIN	A
KIRKENDALL	C	KNIKLIK	E	KOSSUTH	B/D	LA POSTA	C	LAKCA	B
KIRKHAM	C	KNIPPA	C	KOZTA	B	LA PRAIRIE	B	LAKOMA	D
KIRKLAND	D	KNOS HILL	B	KCTO	D	LA ROSE	D	LAKRIDGE	C
KIRKSEY	C	KNOBTOP	C	KCTZMAN	B	LABENZO	E	LALAAU	A
KIRKVILLE	C	KNOCO	D	KOURY	C	LABETTE	C	LALINDA	B
KIRLEY	C	KNOKE	B/D	KOVICH	D	LABISH	D	LALLIE	D
KIRTLEY	C	KNOLLE	B	KOVEN	B	LABKEY	B	LALOS	B
KIRVIN	C	KNOSS	C	KOVNIK	D	LABORCITA	E	LAM	D
KIRVIN, GRADED	D	KNOTT	D	KOVYUK	P	LABOU	D	LAMA	C
KISATCHIE	D	KNOWLES	B	KRACKLE	B	LABOUNTY	D	LAMANGA	C
KISHONA	B	KNOX	B	KPADE	E	LABRE	B	LAMAR	B
KISHONA, ALKALI	C	KNULL	B	KFAKON	D	LABSHAFT	D	LAMARSH	C
KISRING	C	KNUTSEN	B	KRAP	D	LABU	D	LAMARTINE	C
KISRING, WET	D	KOBAR	C	KRANSKI	B	LABUCK	B	LAMATH	D
KISSICK	C	KOBEN	B	KRANZBURG	B	LACAMAS	D	LAMAVA	B
KISTYRN	B	KOBEL	D	KRATKA	B/D	LACERDA	D	LAMBERT	B
KITCHELL	B	KOCH	D	KRAUSE	E	LACHAPELLA	D	LAMBETH	B
KITCHEN CREEK	B	KOCH, DRAINED	C	KREAMER	C	LACITA	B	LAMBMAN	D
KITI	D	KOAK	E	KREBS	F	LACKAWANNA	C	LAMBRING	E
KITSAP	C	KODAK, NONFLOODED	C	KPEM	A	LACKS	C	LAMEDEER	B
KITTEPLL	D	KODIAK	B	KREMLIN	B	LACLEDE	B	LAWINGTON	D

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

LAMKIN	B	LARIAT	B	LAVINA	D	LEETONIA	C	LEW	B
LAMO	C	LARIM	B	LAVON	C	LEEVAN	C	LEWBEACH	C
LAMOILLE	B	LARIMER	B	LAWAI	F	LEFOR	B	LEWDLAC	D
LAMONDI	B	LARIOSCAMP	D	LAVEN	B	LEGALL	B	LEVIS	D
LAMONI	C	LARKIN	B	LAVET	B/D	LEGALTY	D	LEWISBERRY	B
LAMONT	B	LARKSON	C	LAVET,	B	LEGGETT	C	LEWISBURG	C
LAMONTA	D	LARMINE	C	SALINE-ALKALI		LEGLER	B	LEWISTON	C
LAMOOSSE	D	LAROQUE	B	LAWLER	E	LEGORE	F	LEWISVILLE	B
LAMOTTE	B	LAROSE	D	LAWNDALE	B	LENEW	C	LEWKALB	C
LAMCURE	C	LARRUPIN	B	LAWNWOOD	B/D	LEHIGH	C	LEX	B
LAMPASAS	D	LARRY	D	LAWNWOOD,	D	LEHMANS	D	LEXINGTON	B
LAMPHIER	B	LARRY, DRAINED	C	DEPRESSONAL		LEHR	E	LEXTON	B
LAMPSHIRE	B	LARSON	D	LAWRENCE	C	LEICESTER	C	LEYBA	B
LAMSON	B/D	LARTON	A	LAWRENCEVILLE	C	LEIDL	C	LEYDEN	C
LANARK	B	LARUE	A	LAVSHE	D	LEIGHCAN	B	LIBBINGS	D
LANCASTER	B	LARUSH	B	LAVSON	C	LEILEMUA	B	LIBEG	B
LANCE	B	LARVIE	D	LANTHER	D	LEISY	B	LIBERAL	D
LAND	C	LAS	C	LANTON	C	LELA	D	LIPDRY	A
LAND, DRAINED	B	LAS ANIMAS	C	LANYER	B	LELAND	D	LIBRARY	D
LANDAVASO	B	LAS FLORES	D	LAX	C	LEMAH	A	LIBUSE	C
LANDCO	C	LAS LUCAS	B	LAXAL	B	LEMBOS	C	LICHA	B
LANDER	C	LAS POSAS	C	LAXTON	C	LEMCO	C	LICK	B
LANDES	B	LAS VEGAS	D	LAYCOCK	B	LEMERT	D	LICKDALE	D
LANDLOW	C	LASA	A	LAYDINT	C	LEMETA	D	LICKING	C
LANDMAN	B	LASALLE	D	LAYTON	A	LEMING	C	LICKSKILLET	D
LANDSEND	C	LASAUSES	D	LAYVIEW	D	LEMITAR	D	LIDAN	C
LANE	C	LASCO	B	LAZAN	D	LEMM	B	LIDDELL	B/D
LANESBORO	C	LASIL	D	LAZEAR	D	LEMDO	D	LIDDIEVILLE	B
LANEXA	D	LASKA	B	LE BAR	B	LEMOND	B/D	LIDY	B
LANEY	B	LASSEL	C	LE SUEUR	B	LEMONEX	C	LIEBERMAN	B
LANG	C	LASSEN	D	LEA	C	LEMOORE	C	LIEN	D
LANGFORD	C	LASSITER	B	LEADER	B	LEMPIRA	B	LIESNOI	D
LANGHEI	B	LASTANCE	B	LEADORE	B	LENI	C	LIGGET	B
LANGLADE	B	LATAH	D	LEADPOINT	C	LENA	A/D	LIGHTNING	D
LANGLOIS	D	LATAH, HIGH	C	LEADVALE	C	LENA, FLOODED	D	LIGNUM	C
LANGOLA	B	RAINFALL, DRAINED	B	LEADVILLE	B	LENAPAH	D	LIGON	D
LANGRELL	B	LATAH, DRAINED	C	LEAF	D	LENAVEE	B/D	LIGURTA	B
LANGSPRING	B	LATAHCO	D	LEAFRIVER	A/D	LENAVEE, PONDED	D	LIHEN	A
LANGSTON	B	LATAHCO, WET	C	LEAFU	C	LENBERG	C	LIHUE	B
LANGTRY	D	LATANIER	D	LEAGUEVILLE	B/D	LENNEP	C	LIKES	A
LANIER	A	LATCH	A	LEAKSVILLE	D	LENOIR	D	LILAH	A
LANIGER	B	LATENE	B	LEAL	E	LENZ	B	LILBERT	B
LANIGER, GRAVELLY	C	LATES	C	LEALANDIC	D	LENZ, STONY	D	LILBOURN	B
LANKBUSH	B	LATEX	C	LEANNA	D	LENZ, VERY STONY	C	LILLINGS	B
LANKIN	C	LATHAM	D	LEANTO	D	LENZBURG	D	LILLINGTON	B
LANKTREE	C	LATHER	D	LEAPS	C	LEO	A	LILLYLANDS	B
LANDAK	B	LATHROP	B	LEATHAM	C	LEOLA	B	LILTEN	C
LANDNA	B	LATIGO	B	LEATHERMAN	D	LEON	B/D	LILY	B
LANDSALE	B	LATINA	D	LEAVENWORTH	C	LEONARD	D	LIM	C
LANDSDOWNE	C	LATIUM	D	LEAVERS	B	LEONARDO	B	LIMA	B
LANSING	B	LATON	D	LEAVITT	B	LEONARDTOWN	D	LIMBER	B
LANTERN	B	LATONIA	E	LEAVITTVILLE	B	LEONI	B	LIMEKILN	D
LANTIS	B	LATOCHE	D	LEBAM	B	LEGUIEU	D	LIMERICK	C
LANTON	D	LATOUR	B	LEFANON	C	LERDAL	C	LIMPIDGE	D
LANTON, LOW PRECIPITATION	C	LATOURELL	B	LEBEAU	D	LERDO	D	LINKING	B
LANTONIA	B	LATTAS	D	LEBEC	D	LERDY	B	LIMON	C
LANTRY	B	LATTY	D	LEBD	E	LERROW	C	LIMON, WET	D
LANTZ	D	LAUDERDALE	D	LEBSACK	C	LESHARA	B	LIMONES	B
LANYER	C	LAUDERHILL	B/D	LECK KILL	B	LESHO	C	LIMPTA	C
LANYON	C/D	LAUFER	D	LECRAG	D	LESLIE	D	LINCO	B
LAP	D	LAUGENDUR, LOAMY SUBSTRATUM	C	LECFORD	B	LESON	D	LINCOLDN	A
LAPARITA	C	LAUGENDUR, SILTY	B	LEDGEFORK	A	LESPATE	A	LINDAAS	C/C
LAPDUN	B	SUBSTRATUM		LEDMOUNT	D	LESTER	C	LINDALE	C
LAPED	D	SUBSTRATUM		LEDDV	B	LESWILL	E	LINDELL	C
LAPER	B	LAUGENOUR, DRAINED	B	LEDKU	C	LETA	C	LINDEN	B
LAPHAM	A	LAUGHLIN	C	LEDUB	B	LETCHER	D	LINDER	B
LAPINE	A	LAUMAIA	B	LEDWITH	B/D	LETHA	C	LINDLEY	C
LAPLATTA	C	LAUREL	D	LEE	D	LETHENT	D	LINDRITH	B
LAPON	D	LAURELWOOD	B	LEEBENCH	D	LETNBY	A	LINDSIDE	C
LAPORTE	D	LAUREN	B	LEEDS	C	LETON	D	LINDSTROM	B
LAPOSA	C	LAURENTZEN	B	LEEFIELD	C	LETORT	B	LINDY	C
LAPWAI	B	LAVACREEK	B	LEFKO	C	LETRI	B/D	LINE	B
LARAND	B	LAVALLEE	B	LEFKO, WARM	B	LETTIA	C	LINEVILLE	C
LARCHMOUNT	B	LAVATE	B	LEELANAU	A	LEVASY	C	LINGANDRE	B
LARDELL	C	LAVEAGA	C	LEEMONT	D	LEVELTON	D	LINHART	A
LAREDD	B	LAVEEN	B	LEEPER	D	LEVELTON, DRAINED	C	LINGER	C
LARES	C	LAVENTANA	B	LEERAY	D	LEVERETT	C	LINKER	B
LARGO	B	LAVERRKIN	C	LEESBURG	B	LEVIATHAN	B	LINKUP	D
		LAVIC	B	LEESVILLE	B	LEVY	D	LINKVILLE	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

LINLITHGO	B	LODI	B	LOPFZ	D	LOZANO	B	LYLES	B/D
LINNE	C	LODICO	D	LOPWASH	D	LOZIER	D	LYMAN	C/D
LINNET	C	LODO	D	LORACK	B	LUALUALEI	D	LYMANSON	C
LINNEUS	B	LOFFTUS	C	LORADALE	C	LUANA	B	LYME	C
LIND	B	LOFTON	D	LORAIN	C/D	LUAP	C	LYNCH	D
LINOYER	B	LOGAN	D	LORAN	B	LUBBOCK	B	LYNCHBURG	C
LINROSE	C	LOGDELL	B	LORAY	B	LUBRECHT	A	LYNDEN	B
LINSLAW	D	LOGGERT	B	LORDSTOWN	B	LUCAS	C	LYNN HAVEN	B/D
LINT	F	LOGHOUSE	B	LOREAUVILLE	B	LUCE	C	LYNNBOW	D
LINTON	B	LOGRING	D	LORELLA	D	LUCEDALE	D	LYNNBYL	A
LINVELDT	B	LOGY	B	LOPENA	B	LUCERNE	C	LYNNE	B/D
LINVILLE	B	LOHLEP	C	LORENZO	C	LUCERD	B	LYNNVILLE	C
LINWELL	C	LOHMILLER	C	LOPETTO	C	LUCIEN	C	LYNNWOOD	A
LINWOOD	A/D	LOHNES	A	LORING	C	LUCILE, MODERATELY	C	LYNX	B
LIPAN	D	LOHSMAN	D	LORMAN	D	NET	C	LYNXCREEK	B
LIPKE	D	LOIRE	F	LORTA	E	LUCILE, DRAINED	B	LYONMAN	B
LIPPINCOTT	B/D	LOKEN	C	LOS ALAMOS	C	LUCKENBACH	C	LYONS	D
LIPPITT	C	LOKERN	C	LCS BANDS	C	LUCKIAMUTE	D	LYONSVILLE	D
LIRIOS	B	LOKERN,	D	LOS GATOS	C	LUCKY	C	LYRA	D
LISADE	B	SALINE-ALKALI,		LOS GUINEOS	C	LUCKY STAR	B	LYRE	B
LISAM	D	WET		LCS OSOS	C	LUCKY RICH	F	LYSTAIR	B
LISBON	B	LOKERN,	D	LOS ROBLES	B	LUCY	A	LYTELL	B
LISCO	C	SALINE-ALKALI		LCS TANOS	C	LUD	D	LYVILLE	B
LISCOMB	B	LOKSEE	B/D	LCSAATVILLE	C	LUDDEN	C	LYX	B
LISK	B	LOLAK	D	LOSEE	B	LUDINGTON	B	MABANK	D
LISMAS	D	LOLALITA	E	LCSTEASIN	C	LUDLOW	C	MABEL	C
LISMORE	B	LOLEKAA	B	LOSTCREEK	B	LUEDERS	C	MABEN	C
LITCHFIELD	A	LOLETA	C	LCSTINE	F	LUFKIN	D	MABI	D
LITHGON	C	LOLITE	D	LOSTPOINT	D	LUGERT	F	MABRAY	D
LITIMBER	B	LOLD	E	LCSTSPRING	B	LUGOFF	B	MACAR	B
LITLE	D	LOLDN	E	LOSTVALLEY	C	LUNON	B	MACAREEND	B
LITRO	D	LOLOPEAK	A	LOSTWELLS	B	LUKE	C	MACE	B
LITTLE HORN	C	LOMA	C	LOSTWELLS, WET	C	LUKIN	C	MACEDONIA	B
LITTLE POLE	D	LOMAKI	B	LOTHAIR	C	LULA	B	MACFARLANE	B
LITTLE WOOD	B	LOMALTA	D	LCTT	C	LULING	D	MACHETE	C
LITTLEAXE	B	LOMART	E	LCTUS	C	LULUDE	C	MACHIAS	D
LITTLEBEAR	B	LOMAX	B	LCTUSPOINT	C	LUMBEE	B/D	MACHUELO	B
LITTLEJOHN	C	LOMETA	C	LOU	B	LUMBERLY	B	MACK	C
LITTLENAN	C	LOMILL	D	LOUDEPBACK	C	LUMMER	B	MACK, LOAMY	F
LITTLETON	B	LOMIRA	E	LOUDCA	C	LUMMI	D	SUBSTRATUM	D
LITTSAN	C	LOMITAS	D	LOUDONVILLE	D	LUMPI, DRAINED	C	MACKEN	D
LITZ	C	LOMINE	C	LOUELLA	B	LUMMUS	C	MACKERRICHER	A
LIV	D	LOMOND	B	LOUGHBORO	C	LUNA	C	MACKAY	C
LIVEDAK	B	LOMCAK	B	LOUIE	C	LUNDBR	D	MACKSBURG	B
LIVERMORE	B	LOMDO	C	LOUIECREEK	B	LUNDS	C	MACMEAL	B
LIVIA	D	LONDONDERRY	C/D	LOUIN	D	LUNDY	D	MACOMB	E
LIVINGSTON	D	LONE	C	LOUISA	B	LUNING	A	MACOMBER	C
LIVONA	B	LONE ROCK	B	LOUISPURS	B	LUNT	C	MACON	B
LIZE	B	LONEBEAR	D	LOLP	D	LUPE	B	MADALIN	D
LIZZANT	B	LONELY	C	LOLPLOUP	E	LUPINTO	B	MADAWASKA	B
LLANDS	C	LONEPINE	B	LOURDES	C	LUPINTO, SALINE	C	MADDEN	C
LOARC	F	LONERIDGE	C	LOUSCOT	C	LUPDYOMA	B	MADDOCK	A
LOBELL	B	LONESTAR	E	LOUVIERS	D	LUPPINO	D	MADELIA	B/D
LOSELVILLE	C	LONETREE	A	LOVFOJOY	C	LUPTON	A/D	MADELINE	D
LOBERG	C	LONEWOOD	B	LOVELACE	B	LUPTON, PONDED	D	MADERA	D
LOBERT	B	LONGCREEK	D	LOVELAND	C	LURA	C/D	MADGE	B
LOBITOS	C	LONGFORD	C	LOVELAND,	C	LURAY	C/D	MADILL	B
LOBO	D	LONGJIM	D	ELEVATION>6500	D	LURNICK	C	MADISON	B
LOBURN	D	LONGLOIS	B	LOVELL	B	LUSETTI	D	MADONNA	C
LOCANE	D	LONGMARE	D	LOVELOCK	D	LUSK	C	MADRAC	C
LOCEY	C	LONGMONT	C	LOVELOCK,	C	LUTA	B	MADRAS	C
LOCHLOOSA	C	LONGRIE	B	SALINE-ALKALI	B	LUTAK	B	MADRID	B
LOCHSA	B	LONGVAL	B	LOVELOCK, DRAINFD	B	LUTE	D	MADRCNE	C
LOCKE	B	LONGVIEW	C	LOVEWELL	B	LUTH	C	MADUREZ	B
LOCKERBY	C	LONGIGAN	F	LOVLINE	C	LUTHER	B	MAES	B
LOCKERBY, COBBL?	D	LONGIGAN, COBBLY	C	LOWELL	C	LUTIE	B	MAGALLON	B
LOCKHART	B	SUBSTRATUM		LOVERCREEK	A	LUTON	D	MAGDALENA	D
LOCKPORT	B	LONBON	B	LOWBEE	B	LUTZERLOH	E	MAGEBS	B
LOCKTON	B	LOHNA	B	LOWRY	B	LUVERNE	C	MAGGIN	C
LOCKWOOD	B	LOHKE	B	LOWS	B	LUXOR	D	MAGHILLS	B
LOCKWOOD, WET	C	LONTI	O	LOWVILLE	O	LUZENA	D	MAGIC	D
LOCO	C	LOOKINGGLASS	C	LOX	C	LYBROOK	D	MAGINNIS	D
LOCODA	D	LOOKOUT	C	LOXLEY	A/D	LYDA	D	MAGNA	D
LOCUST	C	LOOMER	D	LOYAL	D	LYDICK	B	MAGNET	C
LODALLEY	D	LOOMIS	D	LOYALTON	D	LYERLY	D	MAGNOR	C
LODAR	D	LOONY	C	LOYSVILLE	C	LYFOPD	C	MAGNUS	C
LODF	B	LOPER	C	LOZA	D	LYKENS	C	MAGOTHA	D

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

MAGOTSU	D	MANAWA	C	MARGO	B	MARYSTOWN	C	MAY	B
MAGUAYO	C	MANBURN	D	MARIA	E	MASADA	C	MAY DAY	D
MAHALA	D	MANCELONA	A	MARIANA	C	MASARDIS	A	MAYACAMA	C
MAHALASVILLE	B/D	MANCHESTER	A	MARIAS	D	MASARYK	A	MAYBELL	A
MAHAN	C	MANDAN	B	MARIAVILLE	B	MASCAMP	D	MAYBERRY	C
MAHANA	B	MANDARIN	C	MARICAD	B	MASCARENAS	B	MAYBESG	D
MAHASKA	B	MANDERFIELD	B	MARICOPA	B	MASCHEHAH	B	MAYBID	D
MAHOGAN	C	MANDEVILLE	B	MARIETTA	B	MASCOTTE	B/D	MAYDDL	B
MAHONING	D	MANDY	C	MARILLA	C	MASCOTTE.	D	MAYER	B/D
MAHOOSUC	A	MANET	B	MARIMEL	B	DEPRESSIONAL	C	MAYES	D
MAHTOMEDI	A	MANFRED	D	MARIMEL, DRAINED	B	MASEY	B	MAYFIELD	B
MAHTOWA	C/D	MANGUM	D	MARINA	B	MASHAM	D	MAYFLOWER	C
MAHUKONA	B	MANHATTAN	A	MARINE	C	MASHEL	B	MAYGER	C
MAIA	B	MANHEIM	C	MARION	D	MASHULAVILLE	B/D	MAYHEW	D
MAIDEN	C	PANI	C	MARIPD	B	MASKELL	B	MAYMEAD	B
MAILE	A	MANIKAN	B	MARIPOSA	C	MASON	B	MAYMEN	D
MAINSTAY	D	MANILA	C	MARISCAL	D	MASONFORT	D	MAYNARD LAKE	A
MAITLAND	B	MANISTEE	A	MARISSA	C	MASONTOWN	D	MAYD	B
MAJADA	B	MANITA	C	MARKES	D	MASSACK	C	MAYDDAN	B
MAJUBA	C	MANITOWISH	B	MARKESAN	B	MASSACK, DRAINED	B	MAYDOROTH	C
MAKAALAE	B	MANLEY	B	MARKET	D	MASSADONA	D	MAYOUFEN	B
MAKAM	B	MANLIUS	C	MARKEY	C	MASSANETTA	E	MAYSDDRF	B
MAKALAPA	D	MANN	B/D	MARKEY	B/D	MASSANUTTEN	E	MAYSPPINGS	B
MAKAPILI	B	MANNING	B	MARKLAKE	D	MASSEBACH	D	MAYTAG	D
MAKAWAO	B	MANDGUE	D	MARKLAND	C	MASSENA	C	MAYTDNN	C
MAKAVELI	B	MANDR	B	MARKLEPASS	D	MASSIE	D	MAYVILLE	B
MAKEMA	B	MANSELO	B	MARKTON	C	MASTERSON	B	MAYWOOD	B
MAKI	C	MANSFIELD	D	MARLA	D	MATA	C	MAZARN	C
MAKIKI	B	MANSIC	B	MARLAKE	D	MATAGORDA	D	MAZASKA	C/D
MAKLAK	A	MANSKER	B	MARLPORD	B	MATAMDROS	C	MAZDALE	C
MAKOTI	B	MANSONIA	B	MARLEAN	B	MATANUSKA	B	MAZOURKA	C
MAL	C	MANTACHIE	C	MARLETTE	B	MATANZAS	E	MAZUMA	B
MALA	B	MANTECA	C	MARLOW	C	MATAPEAKE	B	MC CORT	B
MALABAR	B/D	MANTEO	C/D	MARLTON	C	MATAWAN	C	MCAFFEE	C
MALABAR,	D	MANTER	B	MARMARTH	B	MATCHER	A	MCCALLEN	B
DEPRESSIONAL		MANTON	B	MARMARTH, COOL	C	MATFIELD	C	MCCALLISTER	C
MALABAR,	D	MANU	C	MARNA	C/D	MATGO	D	MCCALPIN	C
FREQUENTLY		MANVEL	B	MAROSA	B	MATHENY	B	MCCREE	C
FLOODED		MANVEL, SALINE	C	MADOTZ	C	MATHERS	C	MCCBETH	D
MALABON	C	MANZANAR	C	MARPA	C	MATHERTON	B	MCCBETH, SALINE	C
MALACHY	B	MANZANITA	C	MARPLEEN	D	MATHESON	D	MCCBETH, DRAINED	C
MALAGA	B	MANZANITA,	E	MARQUETTE	A	MATHIAS	B	MCCBIGGAM	B
MALAGA, STONY	A	GRAVELLY		MARQUEZ	C	MATHIS	C	MCCBRIDE	B
MALAMA	A	MANZANO	B	MARR	E	MATHISTON	E	MCCAFFERY	A
MALARGO	B	MANZANDLA	C	MARRIOTT	E	MATHON	B	MCCAIN	C
MALAYA	D	MAPLE MOUNTAIN	B	MARROWBONE	B	MATLACHA	C	MCCALLEE	B
MALBIS	B	MAPLECREST	B	MARSDEN	C	MATNEFLAT	B	MCCALL	B
MALCOLM	B	MAPLEHILL	C	MARSEILLES	C	MATDY	B	MCCALLY	D
MALDEN	A	MAPLETON	C	MARSELL	C	MATTAMUSKEET	D	MCCAMMON	C
MALEZA	B	MAPLETON, STONY	C/D	MARSHALL	B	MATTAN	D	MCCANN	B
MALHEUR	C	MARACK	C	MARSHAN	B/D	MATTAPEX	C	MCCAREY	C
MALIBU	D	MARAGUEZ	B	MARSHBROOK	B	MATTAPONI	D	MCCARRAN	C
MALIN	C	MARANA	B	MARSHDALE	D	MATUNUCK	D	MCCARTHY	B
MALJAHAR	B	MARATHON	B	MARSHDALE, DRAINED	C	MAU	C	MCCASH	B
MALLORY	C	MARBLE	A	MARSHFIELD	E/D	MAUBILA	E/D	MCCLAIVE	C
MALM	C	MARBLECREEK	B	MARSING	B	MAUDE	B	MCCLEARY	D
MALMESA	D	MARBLEMOUNT	B	MART	B	MAUDLIN	B	MCCLELLAN	B
MALO	B	MARBLEMOUNT	C	MARTEL	C	MAUGHAN	D	MCCLOUD	C
MALOTERPE	D	CHANNERY	D	MARTELLA	C	MAUKEY	C	MCCLUDE	C
MALOTT	B	MARCADO	D	MARTIN	C	MAUMEE	A/D	MCCOIN	D
MALDY	B	MARCELINAS	D	MARTIN PENA	D	MAUNABD	D	MCCOLL	D
MALPAIS	B	MARCELLON	C	MARTINECK	D	MAUPIN	C	MCCOLLUM	B
MALSTROM	B	MARCELLA	B	MARTINEZ	D	MAUREPAS	D	MCCONNEL	B
MALVERN	C	MARCIAL	D	MARTINI	B	MAURETOWN	D	MCCONNEL, FLOODED	A
MAHALA	D	MARCLAY	D	MARTINSBURG	E	MAURICE	B	MCCOOK	B
MANDU	C	MARCOLA	C	MARTINSDALE	B	MAURY	E	MCCORNICK	C
MANAHAA	C	MARCONI	C	MARTINSON	C	MAUVAIS	C	MCCORT	B
MANAHAWKIN	D	MARCOTT	C	MARTINSVILLE	B	MAYCO	C	MCCOY	C
MANANA	C	MARCOU	B	MARTINTON	C	MAVEPICK	C	MCCREE	B
MANARD	D	MARCUM	C	MARTIS	E	MAVIF	E/D	MCCRORY	D
MANARD, GRAVELLY	C	MARCUS	B/D	MARTISCO	B/D	MAVAE	B/D	MCCROSKET	B
SUBSTRATUM		MARCUSE	D	MARTY	B	MAVER	B	MCCULLOUGH	B
MANASSA	C	MARCY	D	MARUMSCO	D	MAX	C	MCCULLY	C
MANASSAS	B	MARDIN	C	MARVAN	C	MAXCREEK	D	MCCUMBER	B
MANASTASH	C	MARENGO	C/D	MARVELL	B	MAYEY	B	MCCUNE	D
MANATEE	B/D	MARESLA	B	MARVIN	C	MAXFIELD	B/D	MCCURDY	C
MANATEE,	D	MARGATE	B/D	MARVYN	B	MAXTON	E	MCCUTCHEN	D
DEPRESSIONAL		MARGERUM	B	MARY	C	MAXVILLE	B	MCDABE	C
MANATEE, FLOODED	D	MARGIE	C	MARYSLAND	B/D	MAXWELL	D	MCDANIEL	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

MCDERMOTT	B	MECKLENBURG	C	MERDEN	D	MIKIM, WET	C	MINNEOSA	B
MCDOLE	B	MECOSTA	A	MEREDITH	B	SUBSTRATUM	B	MINNEQUA	C
MCDONALD	C	MEDA	E	MERETA	C	MIKKALO	C	MINNETONKA	D
MCDONALDSVILLE	C/D	MEDANO	D	MERGEL	B	MILACA	B	MINNETONKA, SILTY	C/D
MCDUFF	C	MEDARY	C	MERIDIAN	B	MILAN	B	SUBSTRATUM	D
MCELMO	C	MEDBURN	B	MERINO	C	MILBURY	C	MINNEWAUKAN	A/D
MCELROY	B	MEDCO	D	MERKEL	E	MILBY	B	MINNIECE	D
MCEVEN	B	MEDFORD	B	MERLIN	D	MILCAN	C	MINNIEPEAK	A
MCFADDEN	B	MEDFRA	D	MERMENAU	D	MILPED	C	MINNIEPEAK,	B
MCFAIN	C	MEDICINE	B	MERMILL	B/D	MILES	F	OVERBLOWN,	B
MCFARLAND	B	MEDLEY	B	MERNA	B	MILFORD	B/D	GRAVELLY	B
MCFARLAW	C	MEDLIN	D	MEROS	A	MILHAM	B	MINNIEPEAK,	B
MCGAFFEY	B	MEDMAK	D	MERRICK	E	MILITARY	B	OVERBLOWN	B
MCGARR	C	MEDORA	E	MERRILL	C	MILL HOLLOW	C	MINNIEVILLE	C
MCGARVEY	C	MEDWAY	E	MERRILLAN	C	MILLADORE	C	MINNIAUD	C
MCGARY	C	MEEGERNOT	E	MERRINAC	A	MILLARD	A	MINNITH	C
MCGEMEE	C	MEEGERO	E	MERRITT	C	MILLBORD	D	MINNIE	B
MCGILVERY	D	MEEHAN	E	MERRITT, CLAYEY	B	MILLBROOK	B	MINDA	C
MCGINNIS	C	MEEKS	B	SUBSTRATUM,	B	MILLBURNE	B	MINOCOQUA	B/D
MCGINTY	B	MEEETETSE	D	DRAINED		MILLER	D	MINTER	D
MCGIRK	C	MEGALOS	D	MERRITT, DRAINED	B	MILLERLAKE	B	MINTO	C
MCGIRK, LOW	D	MEGETT	D	MERSHON	C	MILLERLUX	D	MINU	D
PRECIPITATION		MEGONOT	C	MEPTON	E	MILLERTON	D	MINVALE	B
MCGOWAN	B	MEGUIN	B	MERTZ	C	MILLERVILLE	A/D	MINVEND	D
MCGRATH	B	MEHLHORN	C	MEFWIN	A/D	MILLET	B	MINWELLS	C
MCGREW	B	MEIKLE	D	MESA	B	MILLGROVE	B/D	MION	D
MCGUFFEY	D	MEISS	D	MESABA	C	MILLHEIM	C	MIPPOD	C
MCGUIRE	B	MEKINOCK	D	MESCAL	C	MILLHI	D	MIRABAL	C
MCHENRY	U	MELAKNA	C	MESCALERO	C	MILLPOPPER	A	MIRACLE	C
MCILWAINE	B	MELAND	C	MESI	D	MILLICH	D	MIRAGE	C
MCINTOSH	B	MELBOURNE	B	MESPUN	A	MILLICOMA	C	MIRAMAR	B
MCINTYRE	B	MELPY	E	MESSER	C	MILLIGAN	C	MIRAND	D
MCIVEY	C	MELD	C	MET	B	MILLING	D	MIRANDA	D
MCKAMIE	D	MELDER	B	METAMORA	E	MILLINGTON	B/D	MIRES	A
MCKAY	C	MELGA	D	METCALF	D	MILLIS	C	MIRES, STONY	B
MCKEE	D	MELHOMES	D	METEA	B	MILLPAW	C	MIRKWOOD	D
MCKEETH	B	MELITA	A	METH	C	MILLPOT	B	MIRROR	C
MCKELVIF	A	MELLENTHIN	D	METIGOSHE	B	MILLRACE	B	MIRROR LAKE	A
MCKENNA	D	MELLOR	D	METIGLUS	B	MILLPOCK	A	MISAD	B
MCKENNA, DRAINED	C	MELLOR, STRATIFIED	C	METRE	D	MILLSAP	D	MISENHEIMER	C
MCKENZIE	D	SUBSTRATUM		METZ	B	MILLSDALE	B/D	MISHAK	D
MCKINLEY	B	MELLOTT	B	MEFICO	D	MILLSHOLM	D	MISHAK, DRAINED	C
MCKINNEY	C	MELOCHE	D	MEXISPRING	D	MILLSITE	D	MISSION	B
MCKNIGHT	B	MELDLAND	C	MEYSTRE	R	MILLVILLE	B	MISSISSOUDI	A
MCLAIN	C	MELROSE	C	MHCAN	D	MILLWOOD	D	MISSLER	B
MCLAUPIN	B	MELTON	D	MIAMI	E	MILNER	B	MISSOULA	D
MCLEOD	B	MELVILLE	B	MIAMIAN	C	MILOK	B	MITCH	B
MCLOUGHLIN	B	MELVIN	C	MICANOPY	C	MILPITAS	C	MITCH, RARELY	C
MCMEN	C	MENALDOSE	C	MICCO	E/D	MILREN	C	FLOODED	
MCMILLE	B	MEMPHIS	B	MICHELSON	B	MILTON	B	MITCHELL	B
MCMULLIN	D	MENAMGA	A	MICHIGAMME	C	MILVAR	C	MITIWANGA	C
MCMURDIE	C	MENARD	B	MICKY	D	MIMBRES	P	MITKOF	D
MCMURRAY	D	MENASHA	F	MICROY	C	MIMOSA	C	MITKOF, MODERATELY	C
MCMURRAY, DRAINED	C	MENEO	C	MIDAS	C	MINA	B	WET	
MENARY	D	MENEBLORE	C	MIDCO	A	MINALODSA	B	MITRE	C
MENEAL	P	MENDELINA	D	MIDDLE	C	MINAM	B	MITRING	C
MENULL	C	MENDELINA,	E	MIDDLEBURY	B	MINAT	B	MITTEN	B
MENULTY	B	LACUSTRINE		MIDDLEMARCH	B	MINATARE	D	MIVIDA	B
MCPAUL	B	SUBSTRATUM		MIDDLETOWN	B	MINCHEY	B	MIZEL	D
MCPHIE	B	MENDENHALL	D	MIDDLEWOOD	D	MINCHUMINA	D	MNAB	D
MQUARRIE	D	MENDI	B	MIDDELIGHT	E	MINDO	B	NOAG	D
MQUEEN	C	MENDOCINO	B	MIDESSA	B	MINDEGO	C	NOAND	D
MCRAE	B	MENDDN	E	MIDFORK	E	MINDEN	B	NOAPA	C
MCRAYEN	C	MENDOTA	B	MIDLAND	D	MINE	D	NOAULA	A
MCTAGGART	B	MENEFEE	C	MIDMONT	C	MINEOLA	A	NOBATE	D
MVEGAS	D	MENFRD	B	MIDNIGHT	B	MINER	D	NOBEETIE	B
MVICKERS	C	MENIO	D	MIDD	D	MINERAL	C	NOBERG	B
MEAD	D	MEND	C	MIDRAW	D	MINEPAL MOUNTAIN	C	NOBL	B
MEADIN	A	MENOKEN	C	MIDVALE	C	MINERSVILLE	B	NOBRIDGE	B
MEADLAND	C	MENOMINEE	A	MIDWAY	D	MINESINGER	C	NOCA	D
MEADOWBROOK	B/D	MENTO	C	MIERHILL	C	MINETA	C	NOCAFAY	D
MEADOWCREEK	C	MENTOR	B	MIERUF	B	MINGO	B	NOCHO	B
MEADOWLAKE	C	MENZEL	B	MIESEN	C	MINGUS	D	NOCKLEP	B
MEADOWVILLE	B	MEQUON	C	MIFFLIN	B	MINIDOKA	C	NOCMONT	B
MEANS	C	MER ROUGE	E	MIGEFN	B	MINKLER	D	NOCTILEME	C
MEARES	D	MERCED	D	MIGUEL	D	MINLITH	D	MODA	D
MECAN	P	MERCEDES	D	MIKE	D	MINKNEA	C	MODALE	C
MECHANICSBURG	C	MERCEY	C	MIKESSELL	C	MINKNEA	P	MODFNA	B
MECKESVILLE	C	MERCEY	C	MIKIM	C	MINKNEA	B	MODESTO	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS E/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

MODJESKA	B	MONTCALM	A	MORTENSON	C	MUIR	E	MYOMA, WET	B
MODKIN	C	MONTE	B	MORTENSON, COBBLY	D	MUIRKIRK	E	MYRA	C
MODDC	C	MONTE CRISTO	D	MORTON	B	MUKILTED	D	MYRICK	C
MODYON	C	MONTECITO	B	MORVAL	B	MUKILTED, DRAINED	C	MYRTLE	B
MOE	B	MONTEGRANDE	D	MOSBY	C	MULAT	D	MYSTEN	A
MOEN	C	MONTELL	D	MOSCA	B	MULDOON	B	MYSTIC	C
MOENKOPIE	D	MONTELLO	C	MOSCOV	C	MULDPDW	D	NAALEHU	B
MOEPITZ	B	PONTEOCHA	D	MOSEL	C	MULETT	D	NAALEHU, BEDPOCK	C
MOFFAT	B	MONTEOLA	D	MCSSES	B	MULGON	B	SUBSTRATUM	B
MOGG	D	MONTEROSA	D	MOSSES, BOULDERY	C	MULHALL	B	NABESNA	D
MOGLIA	C	MONTESA	C	MOSHANNON	B	MULHOLLAND	B	NACHES	E
MOGOLLON	B	MONTEVALLO	D	MOSHEIM	D	MULHOP	D	NACHUSA	B
MOGOTE	C	MONTEZ	B	MOSHER	D	MULKEY	C	NACMIENTO	C
MOHALL	B	MONTGOMERY	D	MOSHVILLE	C	MULLICA	C	NACLINA	D
MOHAVE	B	MONTICELL	B	MOSHUP	C	MULLIG	B	NACOGDOCHES	D
MOHAWK	B	MONTIETH	B	MOSIDA	B	MULLINS	D	NADA	B
MOHOCKEN	C	MONTLID	C	MOSINEE	B	MULLYON	C	NADEAU	B
MOIESE	B	MONTDRENCI	B	MOSLANDER	D	MULSHOE	C	NADINA	D
MOINES	C	MONTNEVA	C	MOSMAN	D	MULSTAY	C	NADRA	D
MOINGOMA	B	MONTOSO	B	MOSD	E	FULT	C	NAEGELIN	D
MOJD	C	MONTOUR	D	MOSQUET	D	MULTEY	B	NAFF	B
MOKELUMNE	D	MONTOYA	D	MOSROC	D	MULTNOMAH	B	NAGITSY	C
MOKENA	C	MONTPELLIER	C	MCSYRROCK	B	MULTORPOR	A	NAGLE	B
MOKIAK	B	MONTROSS	C	MOSWELL	D	MUNDAL	C	NAGROM	C
MOKINS	D	MONTVALE	D	MCTA	E	MUNDELEIN	B	NAHA	C
MOKO	D	MONTVERDE	B/D	MOTEN	C	MUNDEN	E	NAHATCHE	C
MOKULEIA	B	MONTWEL	C	MOTLEY	B	MUNDOS	B	NAHMA	B/D
MOKALLA	B	MONTWEL, ALKALI	B	MOTDOUA	D	MUNDT	C	NAHON	D
MOLAND	B	MONUÉ	B	MOTT	B	MUNI	D	NAHRUB	C
MOLAS	D	MONVERO	A	MOTTLAND	B	MUNISING	B	NAHUNTA	D
MOLCAL	B	MOODY	B	MOTTO	D	MUNJOR	B	NAIWA	B
MOLENA	A	MOOHOD	B	MOTTSVILLE	A	MUNK	C	NAKAI	B
MOLIDN	D	MOOLACK	A	MOUTLON	C	MUNNELL	B	NAKARNA	B
MOLLICY	C	MOONLIGHT	B	MOUTRIE	D	MUNSET	D	NAKINA	B/D
MOLLMAN	B	MOONSHINE	D	MOUND	C	MUNSON	D	NAKNEK	D
MOLLYVILLE	D	MOONSTONE	C	MOUNDHAVEN	A	MUNUSCONG	B/D	NAKOCCHNA	D
MOLLY	B	MOONVILLE	B	MOUNDPRAIRIE	B/D	MURAD	B	NALAKI	C
MOLOKAI	B	MOOREVILLE	C	MOUNDPRAIRIE,	D	MURANCH	C	NALDO	E
MOLSON	B	MOOSE RIVER	D	PONDED	D	MURDO	B	NALL	D
MOLYNEUX	B	MOUSED	C	MOUNDVILLE	A	MURDOCK	C	NAMBE	R
MOMOLI	B	MOSELAKE	A/D	MOUNT HOME	B	MUREN	B	NAMELA	D
MONA	B	MOSSHAUNEE	C	MOUNT LUCAS	C	MURNEN	B	NAMEOKI	C
MONACAN	C	MOSSILAUKE	C	MOUNTADAMS	B	MURDC	D	NAMON	B
MONACHE	B	MOPANA	D	MOUNTAINSDY	D	MUPPHY	C	NAMUR	D
MONAD	B	MOPANG	B	MOUNTAINBURG	E	MURRIETA	D	NANAMKIN	A
MONADNOCK	B	MOQUAM	B	MOUNTAINEER	C	MURRILL	B	NANCY	B
MONAHANS	B	MORA	C	MOUNTAINVIEW	C	MURTIPI	B	NANIAK	D
MONARDA	D	MORADO	C	MOUNTAINVILLE	B	MURVILLE	A/D	NANKIN	C
MONASTERIO	C	MORALES	D	MOUNTMED	D	MUSCATINE	E	NANNY	B
MONAVILLE	B	MORAN	E	POUNTYED,	C	MUSE	C	NANNYTON	B
MONBUTTE	C	MORANCH	B	MODERATELY WET	B	MUSELLA	B	NANSEMOND	C
MONCHA	B	MORAPDS	C	MOUNTVIEW	B	MUSICK	B	NANSENE	B
MONDAMIN	C	MORD	C	MOUZON	D	MUSINTA	B	NANSEPSEP	C
MONDEY	C	MOREAU	D	MOVILLE	D	MUSKEGO	C	NANSUS	D
MONDHOVI	B	MOREHEAD	C	MOWATA	C	MUSKEGO, MARSHY	D	NANTAHALA	E
MONEE	D	MOREHOUSE	D	MOWEBA	B	MUSKEGO, CLAY LOAM	D	NANTUCKET	C
MONGAUP	C	MORELAND	D	MOWER	C	SUBSTRATUM	B	NANUM	B
MONICO	C	MORENO	C	MOWICH	D	MUSKELLUNGE	D	NAPA	D
MONIDA	C	MOREY	D	MOXEE	D	MUSKINGUM	C	NAPIER	B
MONIERCO	D	MOREY	D	MOYERS	C	MUSKOGEE	C	NAPLENE	B
MONITEAU	C/D	MORFITT	B	MOYERSON	D	MUSDFARE	C	NAPLEDN	A/D
MONITOR	C	MORGALA	C	MOPYNA	D	MUSQUIZ	C	NAPPANEE	C
MONJEAU	D	MORGANFIELD	B	MT. AIRY	A	MUSSEL	B	NAPTOWNE	B
MONOCLINE	C	MORIARTY	D	MT. CARROLL	B	MUSSELSHELL	B	NARANJITO	C
MONOGRAM	B	MORICAL	C	MT. HODD	B	MUSSERHILL	C	NARANJO	C
MONONA	B	MORLEY	C	MT. OLIVE	C	MUSSEY	B/D	NARCISSE	C
MONONGAMELA	C	MORLING	D	MT. VERNON	C	MUSTANG	A/D	NARCOSSEE	C
MONRDE	B	MORNON MESA	D	MUCARA	D	MUTNALA	B	NARD	B
MONROEVILLE	C/D	MOROCCO	B	MUCKALEE	B	MUZZLER	D	NAREL	B
MONSE	B	MORONI	D	MUD SPRINGS	C	MYAKKA	B/D	NARGAR	B
MONSERATE	C	MOROP	C	MUDCO	D	MYAKKA,	D	NARK	C
MONSERATE, THIN SURFACE	D	MORPH	B/D	MUDLAVIA	B	DEPRESSIONAL	D	NARLON	D
MONSON	C/D	MORRILL	B	MUDRAY	D	MYAKKA, TIDAL	D	NARNETT	B
MONTAGUE	D	MORRIS	C	MUES	C	MYATT	D	NARDN	B
MONTALTO	C	MORRISON	B	MUFF	C	MYERS	D	NARRAGANSETT	B
MONTARA	D	MORRISTOWN	C	MUG	D	MYERSVILLE	B	NARRAGUINNEP	D
MONTARA	D	MORROW	C	MUGGINS	C	MYFORD	D	NARROWS	D
MONTAUK	C	MORSE	D	MUGHOUSE	C	MYLREA	C	NARTA	D
MONTBORNE	C	MORSET	B	MUGHUT	C	MYOMA	A	NARU	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

NASER	B	NEHALEM, FLOODED	C	NEWALBIN, MUCK	D	NIKAL	B	NOONAN	D
NASH	B	NEHAR	B	SUBSTRATUM	B	NIKEY	B	NOPAH	C
NASHMEAD	B	NEHAR, STONY	C	NEWALBIN, PONDED	D	NIKFUL	D	NORA	B
NASHOBA	C	NEIBER	C	NEWALLA	D	NIKISHKA	B	NORAD	B
NASHVILLE	B	NEICE	B	NEWANNA	C	NIKLASON	B	NORBERT	D
NASHWAUK	C	NEILTON	A	NEWARK	C	NIKOLAI	D	NORBORNE	B
NASKEAG	C	WEISSENBERG	C	NEWARK, PONDED	D	WILAND	C	NORCAN	C
NASON	C	NEKIA	C	NEWARK, PONDED,	C	NILER	D	NORD	B
NASON, GRAVELLY	B	NEKKEN	B	COOL	B	NILRAP	B	NORDBY	B
NASS	D	NEKOMA	B	NEWALKUM	B	NIMBRO	B	NORDEN	B
NASSAU	C	NELDORE	D	NEWAYCO	E	NIMERICK	C	NORDIC	B
NASSET	B	NELLA	B	NEWBELL	B	NIMMO	D	NORDICOL	B
NATAGA	A	NELLIS	B	NEWBERG	B	NIMROD	C	NORDNESS	B
NATAL	D	NELMAN	C	NEWBERG, WET	C	NIMS	C	NORFOLK	C
NATANK	C	NELSCOTT	C	NEWBERN	C	NIMUE	B	NORFORK	D
NATCHEZ	B	NELSE	B	NEWBERRY	B	NINCH	B	NOPGE	B
NATCHITOCHE	D	NEMADJI	C	NEWBON	B	NINEKAR	D	NORGO	D
NATHALE	C	NEMAH	D	NEWCO	D	NINEMILE	D	NORKA	B
NATHROP	C	NEMAH, DRAINED	C	NEWCOMB	A	NINEPIPE	B	NOPKOOL	B
NATHROP, NONSTONY	B	NEMICO	D	NEWDALE	B	NINEVEH	B	NORLAND	B
NATHROP, COBBLY	B	NEMOTE	C	NEWELL	D	NINIGRET	B	NORMA	B
NATI	C	NEMOURS	C	NEWELLTON	D	NICBELL	C	NORMA, DRAINED	C
NATIONAL	B	NENANA	E	NEWFIELDS	B	NIDTA	D	NORMANGEE	C
NATKIM	B	NENNO	C	NEWFLAT	D	NIDTAZE	C	NORMANIA	B
NATOMAS	B	NEOLA	D	NEWFOUND	C	NIPE	B	NOROB	C
NATROY	D	NEOTOMA	B	NEWGLARUS	B	NIPINTUCK	D	NORREST	C
NATUPITA	B	NEPALTO	D	NEWHAN	E	NIPPT	B	NORRIS	D
NAUKATI	D	NEPESTA	C	NEWHOUSE	B	NIPSUM	C	NORRISTON	A
NAUMBURG	C	NEPHI	B	NEWIPK	B	NIRA	B	NORTE	C
NAUVOO	D	NEPONSET	C	NEWLANDS	D	NIRAC	C	NORTEZ	C
NAVACA	D	NEPPEL	B	NEWLANDS, #ARM	B	NIRE	C	NORTH POWDER	C
NAVAD	D	NEPTUNE	A	NEWLIN	C	NISENE	E	NORTHBCRO	C
NAVASAN	A	NERESON	B	NEWMAN	B	NISHNA	C/D	NORTHCASTLE	B
NAVIDAD	B	NESRITT	E	NEWNATA	C	NISHNA, PONDED	D	NORTHCOTE	C/D
NAVINA	B	NESDA	E	NEWPASS	C	NISHON	C	NORTHDALE	C
NAVO	D	NESHAMINY	B	NEWPORT	C	NISQUALLY	A	NORTHFIELD	D
NAWNEY	D	NESHOBA	C	NEWRY	C	NISULA	B	NORTHMORE	C
NAWT	D	NESIKA	B	NEWSKAH	B	NITCLY	B	NORTHTRUP	C
NAXING	B	NESIOUS	A	NEWSON	E	NITTAW	D	NORTHSTAR	C
NAYE	C	NESKAHI	B	NEWSOCK	A/D	NIU	B	NORTHSTAR	B
NAYPED	B	NESKOWIN	C	NEWSTEAD	B	NIULII	C	NORTHWOOD	B/D
NAYRIB	D	NESD	D	NEWTON	C	NIWANA	C	NOPTON	B
NAZ	B	NESPELEM	D	NEWTONIA	A/D	NIWOT	C	NORTONVILLE	C
NAZATON	B	NESSE	C	NEWTONIA	B	NIX	D	NORWELL	C
NEABSCO	C	NESSEL	D	NEWTOWN	C	NIXA	C	NORWICH	D
NEBAGO	C	NESTER	B	NEWULM	B	NIXON	B	NORWOOD	B
NEBEKER	C	NESTORIA	C	NEWVIENNA	B	NIXONTON	B	NOSRAC	B
NEBGEN	D	NESTUCCA	C/D	NEWVILLE	D	NIZINA	A	NOTAL	D
NERISH	B	NET	D	NEYGAT	D	NDARK	B	NOTCHER	B
NEBONA	D	NETARTS	C	NEZ PERCE	C	NOBE	D	NOTI	B
NECANICUM	B	NETCONG	F	NGARDMAU	E	NOBLE	B	NOTNED	B
NECESSITY	C	NETO	B	NGARDCK	E	NOBLETON	C	NOTSPIER	D
NECHE	C	NETGMA	F	NGATPANG	C	NOBOCO	B	NOTTAWA	B
NECONDA	C	NETRAC	F	NGEDEBUS	A	NOBSCOT	A	NOTTER	C
NECTAR	C	NETTLES	A	NGERSUUL	C	NOBUCK	C	NOTUS	B
NEDA	C	NETTLETON	D	NGERUNGOR	D	NOCKFA	C	NOTUS, DRAINED	B
NEDERLAND	B	NEUBERT	C	NIAGARA	C	NODAWAY	B	NOUQUE	D
NEEDLE	D	NEUNS	B	NIAPADA	B	NODEN	B	NOVACAN	D
NEEDLE PEAK	C	NEURALIA	C	NIAPT	E	NODINE	B	NOVARK	B
NEEDLE PEAK, LOAMY	B	NEURALIA, SANDY	C	NIABS	B	NODELKE	D	NOVARY	D
SUBSTRATUM	B	SUBSTRATUM	B	NIBLEY	C	NOGAL	C	NOVATO	D
NEEDLE PEAK,	9	NEUSKE	B	NIBSEN	D	NOHILI	D	NOVINA	B
OCCASIONALLY		NEVADANILE	C	NIBSNOP	D	NOKASIPPI	B/D	NOVATA	B
FLOODED		NEVADCR	C	NICHOLFLAT	D	NOKAY	C	NOVEN	B/D
NEEDLETON	B	NEVARC	B	NICHOLIA	D	NOKHU	C	NOVDY	B
NEEDLEYE	C	NEVAT	C	NICHOLS	F	NOLAM	B	NOYER	B
NEEDMORE	C	NEVEE	B	NICHOLSON	C	NOLICHUCKY	B	NOYES	C/D
NEELEY	B	NEVERSINK	D	NICHLVILLE	C	NOLIN	B	NOYD	C
NEEN	C	NEVILLE	D	NICKEL	B	NOLD	D	NOYSON	C
NEEN, WET	D	NEVILLE, WET	B	NICKIN	E	NOLTEN	C	NUAHS	B
NEEN, DRAINED	B	NEVIN	C	NICKSVILLE	C	NOMARA	C	NUBY	D
NEENAH	C	NEVINE	B	NICODEMUS	B	NOME	D	NUBY, DRAINED	C
NEER	B	NEVKA	C	NICODEMUS, FLOODED	C	NOMIE	B	NUBY, PROTECTED	C
NEESES	C	NEVDYER	C	NICOLAS	A	NONDALTON	B	NUC	C
NEESOPAH	B	NEVTAM	D	NICOLLET	B	NONDPAHU	D	NUCKDILLS	B
NEFF	C	NEVU	C	NIDD	C	NONPAREIL	D	NUCLA	B
NEGLE	B	NEW CAMPRIA	C	NIELSEN	D	NOOK	C	NUCES	B
NEHALEM	3	NEWALBIN	C	NIGHTHAWK	E	NOOKACHAMPS	D	NUEVA	B
			E/D	NIHILL	E	NOOKSACK	C	NUFF	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

NUGENT	A	OCNALUFTEE	B	OLD CAMP	D	OPENLAKE	D	OSAKIS	B
NUKRUN	D	OCONEE	C	OLDENBURG	B	OPEQUON	C	OSBORN	C
NULEY	B	OCONTO	B	OLDHAM	C/D	OPHIR	C	OSBORN, MODERATELY	D
NULLIGAM	S	OCOSTA	D	OLDS	D	OPIKIKAO	D	WET	
NUMA	B	OCQUEOC	A	OLDSFERRY	C	OPLIN	C	OSCAR	D
NUNDA	C	OCQUEOC,	B	OLDSMAR	B/D	OPPID	D	OSCURA	C
MUNEMAKER	D	MODERATELY WET		OLDSMAR,	D	OPPID, STONY	C	OSGOOD	C
MUNICA	C	OCRAIG	D	DEPRESSIONAL		OQUAGA	C	OSHA	B
NUNN	C	OCTAGON	B	OLELO	B	OQUIN	C	OSHANA	D
NUNN, MODERATELY	B	OCTAVIA	B	OLENO	D	ORA	C	OSHKOSH	C
WET		ODAS	D	OLENTANGY	A/D	ORACLE	D	OSHONE	D
NUNNSTON	C	ODELL	B	OLEQUA	B	ORAGRAN	D	OSHTEMO	B
NUPART	D	ODEM	A	OLETE	C	ORAI	C	OSIER	A/D
NUPPER	D	ODENSON	D	OLEX	B	ORAN	B	OSITO	C
MURKEY	B	ODERMOTT	C	OLF	D	ORANGE	D	OSKA	C
NUSS	D	ODERMOTT, STONY	B	OLGA	C	ORANGEBURG	B	OSMUND	B
MUTALL	D	ODESSA	D	OLI	B	ORANGEVALE	B	OSO	C
MUTIVOLI	A	ODIN	C	OLIAGA	C	ORCAP	C	OSOBB	D
NUTLEY	C	ODNE	D	OLICAL	B	ORCAS	D	OSOLL	D
NUTRAS	C	ODO	B	OLIN	B	ORCHARD	B	OSDRIDGE	D
NUTRIDSO	B	ODONNELL	C	OLINDA	B	ORCKY	B	OSDTF	D
NUVALDE	B	OELOP	B	OLIPHANT	B	ORD	B	OSSIAN	B/D
MUYOBE	C	DEST	B	OLIVENHAIN	D	ORDNA	D	OSSIPEE	D
NYALA	B	OESTERLE	C	OLIVIER	C	ORDNANCE	C	OST	B
NYE	B	OFFENBACHER	C	OLJETO	A	ORDWAY	D	OSTLER	C
NYJACK	C	OFU	B	OLLEI	D	OREANA	B	OSTRANDER	E
NYMORE	A	OGARTY	C	OLLIERIVAS	D	OREANNA	B	OSWALD	D
NYSERYA	B	OGEECHEE	B/D	OLMITO	D	OREJAS	C	OTANYA	B
NYSSA	C	OGEMAW	C/D	OLWITZ	B	ORELIA	D	OTEEN	C
NYSSANTON	B	OGILVIE	B/D	OLWOS	C	ORELLA	D	OTERO	B
NYSWONGER	D	OGIALA	B	OLMSTED	B/D	OFENDA	B	OTHELLO	C/D
O'BRIEN	B	OGLE	B	OLNES	B	OFENEVA	B	OTISCO	A
O'NEILL	B	OGLESBY	D	OLNEY	B	OFORD	B	OTISVILLE	A
DAHE	B	OGRAL	B	OLDAYA	B	ORHOOD	D	OTLEY	B
CAK GLEN	B	OHACO	C	OLOKUI	C	ORICTO	B	OTOMO	D
OAK GROVE	B	OMANA	C	OLONDUNT	C	OPIDIA	C	OTODLE	C
OAKALLA	B	OHIA	A	OLONPALI	D	ORIF	A	OTTER	B/D
OAKBORD	C	OHOP	C	OLOT	C	ORIGO	B	OTTERHOLT	B
OAKDALE	B	OHSCOW	B	OLOTANIA	B	ORINDCO	C	OTTERSON	A
DAKDN	D	OIDEM	A	OLPE	C	ORIO	B/D	OTTMAR	B
OAKES	B	OJATA	D	OLSON	D	ORION	C	OTTOKEE	A
OAKHILL	B	OJIBWAY	C	OLTON	C	ORITA	B	OTTOSEN	D
OAKMURST	D	OJITO	C	OLUSTEE	B/D	ORIZABA	C	OTTUMWA	B
OAKLAND	C	OJITOS	B	OLYIC	B	ORIZABA, DRAINED	B	OTWAY	D
OAKLET	C	OKANDGAN	B	OLYPTIC	B	ORLA	B	OTWELL	C
OAKMETER	C	OKATON	D	OMADI	B	ORLAND	B	OTWIN	C
OAKVILLE	A	OKAW	D	OMAK	C	ORLANDO	A	OUACHITA	D
OAKWOOD	B	OKAY	B	OMEGA	A	ORLIE	C	OUARD	C
OANAPUKA	B	OKEE	B	OMENA	B	ORMAS	B	OULA	D
OASIS	B	OKEECHOBEE	B/D	OMIO	B	ORMISTON	C	OUPICO	C
OATLANDS	B	OKEELANTA	B/D	OMNI	D	ORMSBY	C	DURAY	B
DATMAN	B	OKEELANTA,	D	OMPO	C	ORNBAUN	B	DUSLEY	C
OATUU	D	DEPRESSIONAL		OPSTOTT	C	ORD FINO	B	OUTERKIRK	B
OBAN	C	OKEELANTA, TIDAL	D	OMULGA	C	ORG GRANDE	D	OUTLET	C
OBANION	C	OKEELANTA, FLOODED	D	ONA	E/D	ORGNEN	D	OUTLOOK	D
OBARD	B	OKEETEE	D	ONAMIA	B	ORONOCO	B	OUTLOOK, DRAINED	C
OBEN	C	OKEMAH	C	ONADUI	D	OROSE	C	OVALL	C
OBISPO	D	OKIOTA	D	ONARGA	B	OROVADA	B	OVAN	D
OBRAST	D	OKLARED	B	ONASON	C	ORPARK	C	OVANDD	A
ORAY	D	OKLARK	B	ONAVA	D	ORPHA	A	OVERGAARD	C
OBSCURITY	B	OKLAWAMA	B/D	ONAWAY	B	ORPHANT	D	OVERLAND	C
OBSERVATION	C	OKO	C	ONDAWA	B	ORR	B	OVEPLY	C
OBURN	D	OKO, STONY	C	ONECO	B	ORR, GRAVELLY	C	OVERTON	D
OCALA	C	OKOBOJI	B/D	ONEIL	C	SUBSTRATUM		CVIATT	B
OCAMBER	C	OKOBOJI, PONDED	D	ONEONTA	B	ORRUB	D	OVID	C
OCANA	B	OKOLONA	D	ONITA	C	ORRVILLE	C	OVINA	B
OCOCO N	B	O REEK	D	NITE	B	O SA	A	OWANKA	C
OCUM	B	OKRIST	B	ONKEYO	D	ORSET	B	OWEGO	D
OCEANET	D	OKYAMA	B	ONOTA	B	ORSIND	A	OVEN CREEK	C
OCEANO	A	OKTIBBEHA	D	ONSLow	B	ORTEGA	A	OWENS	D
OCHEYEDAN	B	OLA	C	ONTARIO	B	ORTELLO	B	OWENTOWN	B
OCHLOCKONEE	B	OLAA	A	ONTEORA	C	ORTING	D	OWHI	B
OCHO	D	OLAC	D	ONTKO	D	ORTIZ	C	OWINZA	D
OCHOCO	C	OLANCHA	B	ONTONAGON	B	ORTON	B	OWLCAN	B
OCHOPEE	B/D	OLAND	B	ONYX	B	ORWASH	A	OWDSSO	B
OCIE	C	OLANTA	B	OOKALA	A	ORWET	A/D	OWSEL	B
OCILLA	C	OLASHES	B	OOKEN	B	ORWIG	A	OWYHEE	B
OCKLEY	B	OLATHE	D	OPAL	D	ORWOOD	B	DXBOV	C
OCOE	B/D	OLBUT	D	OPELIKA	D	OSAGE	D	DXCOREL	D

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

OXENDINE	D	PALIX	E	PAPALOTE	C	PATIO	C	PELEE	B
OXERINE	C	PALLS	C	PAPINEAU	C	PATIT CREEK	B	PELELIU	D
OXFORD	D	PALM BEACH	A	PAPOUSE	B	PATNA	B	PELHAM	B/D
OXHEAD	R	PALMA	B	PAPA	B	PATOS	C	PELIC	D
OXLEY	C	PALMAR	D	PARACHUTE	B	PATOUTVILLE	B	PELION	B/D
DXWALL	D	PALMAREJO	C	PARADISE	C	PATRICIA	B	PELKIE	A
OYHUT	C	PALMER CANYON	B	PARADOX	B	PATRICK	B	PELLA	B/D
OYLEN	C	PALMERDALE	B	PARANAT	C	PATROLE	C	PELLEJAS	B
OZAMIS	D	PALMETTO	B/D	PARANAT, DRAINED.	B	PATTANI	D	PELLICER	D
OZAN	D	PALMETTO,	D	SALINE	D	PATTEE	B	PELONCILLO	D
OZAUKEE	C	DEPRESSIONAL		PARASOL	B	PATTENBURG	B	PELTIER	C
OZETTE	C	PALVICH	B	PARCELAS	D	PATTER	B	PEMBERTON	B
CZIAS	D	PALMS, OVERWASH	A/D	FARCHIN	D	PATTEPSON	C	PEMBROKE	B
PAAIKI	B	PALMS, MAAT>50	A/D	PARCHIN, COOL	C	PATTON	B/D	PEWENE	B
PAALOA	B	PALMS, MAAT<50	A/D	PARDALOE	B	PAUL	B	PEMI	C
PAAUHAU	A	PALYS, PONDDED	D	PARDEE	D	PAULDING	D	PENA	B
PABLO	D	PALMS, SANDY	A/C	PARDEEVILLE	P	PAULINA	D	PENAPON	D
PACHAPPA	B	SUBSTRATUM		PARENAT	C	PAULSON	B	PENASCO	B
PACHECO	C	PALMS, GRAVELLY	A/D	PARENT	B/D	FAULVILLE	B	PENCE	B
PACHECO, DRAINED	B	SUBSTRATUM		PARIATO	D	PAUMALU	B	PEND OREILLE	B
PACIFICO	C	PALMYRA	B	PARIETTE	B	PAUNSAUGUNT	D	PENDANT	D
PACK	C	PALO	D	PARISA	D	PAUSANT	C	PENDARVIS	C
PACKARD	B	PALODURO	B	PARISIAN	D	PAUWELA	B	PENDEN	B
PACKER	B	PALOMARIN	B	PARKALLEY	B	PAVAIAI	C	PENDER	C
PACKHAM	B	PALOMAS	B	PARKAY	B	PAVANT	D	PENDERGRASS	D
PACKTRAIL	C	PALOMINO	D	PARKDALE	D	PAVER	B	PENDLETON	C
PACKWOOD	D	PALON	B	PARKE	B	PAVILLION	B	PENDPOY	D
PACO	C	PALOPINTO	D	PARKER	D	PAVO	B	PENELAS	D
PACOLET	B	PALOS VERDES	D	PAPKFIELD	D	PAVOHRDO	C	PENEY	B
PACTOLA	B	PALOUSE	B	PAPKHILL	B	PAWCATUCK	B/D	PENGILLY	B/D
PACTOLUS	A	PALSGROVE	B	PAPKINSON	B	PANMUSKA	B	PENGRA	C
PADDOCK	C/D	PALUXY	B	PARKS	B	PAWLING	B	PENINSULA	B
PADEN	C	PAMISON	B	PARKVIEW	B	PAWNEE	B	PENISTAJA	B
PADILLA	C	PAMLICO	D	PARKVILLE	D	PAXICO	C	PENITENTE	B
PADINA	B	PAMOA	B	PARKWOOD	B	PAXTON	B/D	PENLAW	C
PADRES	B	PAMSDEL	C	PARLEYS	C	PAXVILLE	B	PENN	C
PADRONES	B	PAMUNKEY	R	PARLIN	R	PAYETTE	B/D	PENNEKAMP	A
PADUCAH	B	PANA	P	PARLO	P	PAYMASTER	B	PENNELL	D
PADUS	B	PANAWEA	D	PAFMELE	D	PAYNE	C	PENNEY	A
PAESL	B	PANAK	B	PAPKELOW	B	PAYNECREEK	C	PENNICHTUCK	B
PAGARI	B	PANAMA	B	PAPMENTER	B	PAYSON	D	PENNSUCO	D
PAGEBROOK	D	PANAMINT	B	PAPMLFED	B	PEACHAM	C	PEND	C
PAGINA	C	PANASOFFKEE	C/D	PARNELL	C/D	PEACHLAND	C/D	PENOVER	B
PAGODA	C	PANCHERI	B	PAPCUAT	B	PEARL	E	PENROSE	D
PAGOSA	C	PANDO	B	PARR	B	PEARL HARBOR	B	PENSORE	D
PAGUATE	C	PANDDAH	C	PARRAN	D	PEARSOLL	D	PENTHOUSE	D
PAHAKA	B	PANDORA	B/D	PARRISH	B/D	PEASLEY	D	PENTZ	D
PAHOKEE	B/D	PANDURA	D	PARRITA	D	PEASPEAR	D	PENWELL	A
PAHRANAGAT	C	PANE	B	PARSHALL	B	PEAVINE	C	PENWOOD	A
PAHRANAGAT, VERY	D	PANGBORN	D	PAKSIPPANY	D	PEAWICK	C/D	PENZANCE	C
POORLY DRAINED		PANGUITCH	B	PARSONS	D	PEEBLEPOINT	D	PEDGA	C
PAHRANGE	C	PANHANDLE	B	PARTLOW	D	PECATONICA	D	PEDH	D
PAHREAM	C	PANHILL	B	PARTCV	D	PECKHAM	C	PEOM, DRAINED	C
PAHROC	D	PANIN	B	PARTPI	C	PECKISH	D	PEOLA	C
PAHRUMP	C	PANIOGUE	B	PARTRIDGE	B	PECOS	A	PEDNE	D
PAHSTIMEFDI	B	PANIOGUE, WET	C	PASASGHAK	C	PECTURE	D	PEONE, DRAINED	C
PAIA	B	PAVITCHEN	B	PASCO	B	PEDCAT	D	PEORIA	D
PAICE	D	PANKY	C	PASCO, DRAINED	C	PEDEE	C	PEOTONE	B/D
PAILD	B	PANMOD	C	PASO SECO	C	PEDERNALES	D	PEPAL	B
PAINESVILLE	C	PANOCHE	B	PASQUETTI	B	PECIGO	D	PEPDON	D
PAINT	D	PANOCHE,	C	PASQUETTI,	C	PEDLEFORD	C	PEPPER	D
PAISLEY	D	SALINE-ALKALI,		MODERATELY WET		PEDOLI	B	PEPTON	D
PAIT	B	WET		PASQUETTI, DRAINED	C	PEDRICK	B	PEQUAMING	A
PAJARA	C	PANDLA	D	PASQUOTANK	B/D	PEDRO	C	PEQUEA	B
PAJARITO	B	PANOR	B	PASS CANYON	D	PEEBLES	D	PEQUOP	B
PAJUELA	B	PANORAMA	B	PASSAR	C	PEEKO	C	PERALTA	C
PAKA	B	PANDZA	P	PASSCREEK	C	PEEL	D	PERAZZO	B
PAKALA	B	PANSEY	D	FASTERN	D	PEELER	D	PERCETON	B
PAKINI	B	PANTANO	D	PASTIK	C	PEERLESS	B	PERCHAS	D
PALACIOUS	D	PANTEGO	B/D	FASTGRIUS	B	PEETZ	A	PERCILLA	D
PALAFIX	C	PANTERA	B	PASTURA	B	PEEVER	C	PERCIVAL	C
PALANUSH	C	PANTHER	D	PATAHA	D	PEEVYNELL	C	PERCDUN	C
PALAPALAI	B	PANTON	D	PATCHIN	D	PEGLEG	C	PERCY	B/D
PALATINE	B	PADLA	A	PATE	C	PEGLER	D	PERDIN	C
PALAU	B	PADLI	F	PATELZICK	D	PEGHAM	D	PERELLA	B/D
PALAZZO	C	PAPAA	D	PATENT	C	PEKAY	C	PERELLA,	B
PALBOONE	B	PAPAC	C	PATHEAD	C	PEKIN	C	MODERATELY WET	B
PALINDR	C	PAPAGUA	C	PATILLAS	P	PELANATCHIE	C	PERHAM	B
PALISADE	B	PAPAI	A	PATILO	B	PELAN	B	PERICO	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

PERIDGE	B	PHILO	B	PINELLAS	B/D	PLASKETT	D	POKEGEMA	B
PERILLA	B	PHILOMATH	D	PINELLI	B	PLATA	B	POKEMAN	C
PERINOS	C	PHING	D	PINETOP	C	PLATEA	C	POKER	C
PERITSA	C	PHIPPS	C	PINETUCKY	B	PLATNER	C	POKERGAP	B
PERKINS	C	PHLISS	D	PINETUCKY, GRADED	C	PLATO	C	POKEY	C
PERKS	A	PHOEBE	B	PINEVAL	B	PLATORO	B	POLACCA	C
PERLA	C	PHOENIX	D	PINEVILLE	B	PLATTE	B	POLALLIE	C
PERLOR	D	PHYS	B	PINEZ	B	PLATTE, WET	D	POLAR	B
PERNA	B	PIANKESHAN	B	PINGREE	D	PLATTE, CHanneled	D	POLATIS	C
PERN	B	PIASA	D	PINHOOK	D	PLATTVILLE	B	PCLAWANA	A/D
PERNITAS	C	PIBLER	D	PINICON	B	PLAYCO	B	POLE	D
PERNDG	D	PICABO	C	PINITOS	F	PLAYER	D	POLECREEK	D
PERNTY	D	PICACHO	C	PINKEL	C	PLAYMOOR	C/D	POLELINE	B
PERQUINANS	D	PICANTE	D	PINKHAM	A	PLAZA	A	POLEPATCH	A
PERREAU	B	PICAYUNE	B	PINKSTON	B	PLEASANT	C	POLEY	C
PERRIN	B	PICEANCE	C	PINNACLES	C	PLEASANT, PONDED	D	POLEY, COBBLY	D
PERRINE	D	PICKAWAY	C	PINNEBOG	A/D	PLEASANT GROVE	B	POLICH	C
PERRINTON	C	PICKENS	D	PINNGBIE	B	PLEASANT VALE	B	POLKING	D
PERRY	D	PICKETT	C	PINO	C	PLEASANT VIEW	B	POLLARD	C
PERRY PARK	B	PICKFORD	D	PINOLE	B	PLEASANTON	B	POLLASKY	B
PERRYVILLE	B	PICKNEY	A/D	PINON	D	PLEDGER	D	POLLUX	C
PERSANTI	C	PICKNEY, FLOODED	D	PINONES	D	PLEGOMIR	D	POLLY	B
PERSAYO	D	PICKRELL	D	PINRIDGE	B	PLEINE	D	POLD, MODERATELY	C
PERSHING	C	PICKTON	A	PINSRING	C	PLEIOVILLE	C	POLD, MODERATE	B
PERSIS	B	PICKUP	C	PINTAS	C	PLEITO	C	PERMEABILITY	B
PERT	D	PICKWICK	B	PINTLAR	B	PLEVNA	D	PERMAT	C
PERU	C	PICO	B	PINTO	C	PLINCO	B	POMAT, DRY	B
PERVINA	B	PICOSA	C	PINTURA	A	PLITE	B	POMELLO	B
PERWICK	C	PIDCOKE	D	PINTWATER	D	PLOME	E	POMERENE	C
PESCADERO	D	PIDINEEN	D	PIDCNE	D	PLOVER	C	POMFRET	A
PESCAR	C	PIE CREEK	D	PIE POLIS	C/D	PLUCK	C	POMO	B
PESHASTIN	B	PIEGON	B	PIE LINE	B	PLUMAS	D	POMONA	B/D
PESHEKEE	D	PIERIAN	B	PIEP	C	PLUMMER	B/D	POMONA, D	D
PESMO	C	PIERKING	D	PIESTONE	D	PLUSH	B	DEPRESSIONAL	B/D
PESMORE	C	PIERPONT	C	PIPPIN	A	PLUTOS	B	POMPAND	D
PESO	C	PIERRE	D	PIPO	B	PLYMOUTH	A	POMPAND, D	D
PESOWYO	C	PIERSONTE	A	PIPODEL	A	POALL	C	DEPRESSIONAL	D
PETACA	D	PIERZ	B	PIROUETTE	B	POARCH	D	DEPRESSIONAL, FLOODED	D
PETAL	C	PIETOWN	B	PIRUP	B	POBER	C	POMPEII	C
PETAN	D	PIGTAIL	C	PISGAM	C	POCALLA	B	POMPONIO	D
PETEETNEET	D	PIINONUA	A	PISHKUN	B	POCAN	B	POMPTON	B
PETERMAN	D	PIKE	B	PISHO	D	POCASSET	B	POMROY	C
PETERMAN, SANDY	C	PIKEVILLE	B	PIT	D	POCATELLO	E	PONCA	B
SUBSTRATUM, ALKALI		PILABO	B	PITCHER	A	PCCATY	D	PONCENA	D
PETERS	D	PILCHUCK	C	PITCO	D	POCKER	C	PONCHA	A
PETERSON	B	PROTECTED	A	PITNEY	C	POCOLA	D	PONCIAND	C
PETESCREEK, STONY	B	PILINE	D	PITTMAN	C	POCOMOKE, PONDED	B/D	POND	D
PETESCREEK, GRAVELLY	C	PILLIKEN	B	PITTSFIELD	E	POCOMOKE, DRAINED	B	POND CREEK	B
PETRIE	D	PILLLOT	B	PITTSTOWN	C	POCONO	B	PONDER	D
PETROLIA	C/D	PILLSBURY	C	PIUTZ	C	POCDEN	F	PONIL	D
PETROS	D	PILOT PEAK	D	PIUTE	D	PODMOR	C	PONINA	D
PETSPRING	D	PILOT ROCK	D	PIVOT	A	PODD	D	PONDOZZO	C
PETTICOAT	B	PILOTPEAK	D	PIXLEY	D	PODUNK	B	PONTO	B
PETTIGREW	B/D	PILTOWN	B	PIZENE	E	PODUS	C	PONTOTDC	B
PETTUS	C	PILTZ	C	PLACEDO	D	POE	C	PONZER	D
PETTY	B	PIMA	B	PLACENTIA	D	POGAL	C	POOCHAM	B
PEVETO	A	PIMER	F	PLACERITOS, SALINE, DRAINED	E	POGANEAB	C	POOKU	B
PEWAMO	C/D	PINAL	D	PLACERITOS, SALINE-ALKALI	C	POGANEAB, CLAYEY	D	POOLER	D
PEYTON	B	PINALENO	B	PLACERITOS, MODERATELY WET	B	SUBSTRATUM	D	POOLEVILLE	C
PFEIFFER	B	PINAMT	B	PLACERITOS, HIGH RAINFALL	B	POGANEAB, SALINE	D	POORCAL	B
PHAGE	B	PINATA	C	PLACERITOS, WET	C	POGANEAB, HIGH	D	POORMA	B
PHALANX	B	PINAVETES	A	PLACERITOS, WET	C	POGANEAB, STRONGLY	D	POOSE	D
PHANTOM	C	PINBIT	B	PLACERITOS, SALINE	B	POGANEAB, CLAYEY	D	POOTATUCK	B
PHARD	B	PINCHER	C	PLACERITOS, SALINE	B	SUBSTRATUM	D	POPASH	D
PHARR	B	PINCHOT	B	PLACID	B/D	POGANEAB, SALINE	D	POPE	B
PHIBA	C	PINCKNEY	C	PLACID, FREQUENTLY FLOODED	D	POGANEAB, HIGH	D	POPHERS	C
PHENEA	C	PINCONNING	F/D	PLACID, FREQUENTLY FLOODED	D	POGANEAB, SALINE	D	POPLE	C/D
PHENEY	C	PINE FLAT	B	PLACID, FREQUENTLY FLOODED	D	POGANEAB, SALINE	D	POPLIMTOD	C
PHELAN	D	PINEAL	D	PLACID, FREQUENTLY FLOODED	D	POGANEAB, SALINE	D	POPOSHIA	B
PHELPS	B	PINEBUTTE	B	PLACITAS	C	POGUE	B	POPTOTIA	B
PHERSON	B	PINECREEK	B	PLACK	D	POHAKUPU	B	POPPLETON	A
PHIFERSON	C	PINEDA	B/D	PLAINBO	A	POIN	D	POQUETTE	A
PHILBON	D	PINEDA, DEPRESSIONAL	D	PLAINFIELD	A	POINDEXTER	E	POQUITA	B
PHILDER	D	PINEDALE	B	PLAINSTED	C	POINSETT	B		
PHILIPPA	C	PINEGUEST	B	PLAISTED	C	POINT	C		
PHILIPSBURG	B	PINEMURST	B	PLANK	D	POINT ISABEL	C		
PHILLCHER	B	PINEISLE	B	PLANKINTON	D	POISONCREEK	D		
PHILLIPS	C		B	PLAND	E	POJO	C		
			B	PLANTATION	B/D	POJDAQUE	B		

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

POQUONOCK	C	PREMIER	B	PUNCHBOWL	D	QUINLIVEN	C	RAMROD	C
PORFIRIO	C	PRENTISS	C	PUNG	C	QUINN	B/D	RAMSDELL	D
PORRETT	D	PRESA	B	PUNGO	D	QUINNEY	C	RAMSDELL, DRAINED	C
PORRONE	B	PRESHER	B	PUNDHU	A	QUINTANA	B	RAMSEY	D
PORT	B	PRESTO	B	PUNSIT	C	QUINTO	D	RAMSHORN	B
PORT BYRON	B	PRESTON	A	PUNTA	B/D	QUINTON	C	RANA	D
PORTAGE	D	PREWITT	B	FUNTILLA	B	QUITERIA	B	RANCE	C
PORTAGEVILLE	D	PREY	C	PURCELLA	B	QUITMAN	C	RANCHDSECO	D
PORTALES	B	PRICE	B	PURCHES	C	QUIVERA	C	RANDADO	C
PORTALTO	B	PRIDA	C	PURDAM	C	QUONSET	A	RANDALL	D
PORTERFIELD	C	PRIDHAM	D	PURDY	D	QUOPANT	D	RANDCORE	D
PORTERS	B	PRIESTLAKE	B	PURETT	B	QUOSATANA	D	RANDMAN	D
PORTERVILLE	D	PRIETA	D	PURGATORY	D	RABBITEK	B	RANDCLPH	C
PORTHILL	D	PRIM	D	PURNER	D	RABER	C	RANDS	C
PORTIA	C	PRIMEAUX	C	PURDB	C	RABIDEUX	B	RANDSEBURG	D
PORTINO	C	PRINEN	D	PURSLEY	B	RABUN	B	RANGEE	D
PORTLAND	D	PRINGHAR	B	PURVES	D	RACE	B	RANGER	C
PORTMOUNT	E	PRINCETON	B	PUSHMATAHA	C	RACINE	B	RANPUFF	D
PORTNEUF	B	PRINEVILLE	C	PUSTOI	B	RACKER	B	RANSLO	D
PORTOLA	B	PRING	B	PUTNAM	D	RACOMBES	A	RANSON	E
PORTSMOUTH	B/D	PRINGLE	D	PUTNEY	B	RACOOON	B/D	RANSTEIN	D
PORUM	D	PRITCHARD	C	PUTT	C	RAD	C	RANTOUL	B
POSANT	D	PRITCHETT	C	PUTTSTER	C	RAD, LACUSTRINE	C	RAPATEE	D
POSEN	B	PROCHASKA	A/D	PUU DD	A	SUBSTRATUM	A	RAPELJE	B
POSEY	B	PROCTOR	B	PUU OPAE	B	RAD, FLOODED	B	RAPH	E
POSEYVILLE	C	PROGRESSO	C	PUU PA	A	RADDE	A	RAPHO	B
POSITAS	D	PROMISE	D	PUU PA, NONSTONY	F	RADER	D	RAPIDAN	B
POSKIN	C	PROMO	D	PUUKALA	D	PADERSBURG	B	RAPLEE	C
POSO	B	PRONG	C	PUONE	C	RADFORD	B	RAPPAMNOCK	D
POSOS	C	PROPHETSTOWN	B/D	PUYALLUP	B	RADLEY	B	RAPSON	B
POST	D	PROSPECT	B	PYBURN	D	RADNOR	D	RARDEN	C
POTAMUS	B	PROSPER	B	PYLE	B	RAFAEL	D	RARICK	C
POTCHUB	C	PROSSER	C	PYLON	D	RAFTON	D	RARITAN	C
POTEET	C	PROTIVIN	C	PYOTE	A	RAFTRIVER	C	RASBAND	E
POTELL	B	PROUT	C	PYRAPID	D	RAGLAN	B	RASILLE	B
POTH	C	PROUTY	C	PYRHONT	D	PAGNAR	B	RASSER	E
POTLATCH	C	PROVIDENCE	C	PYRHONT, BEDROCK	C	RAGNEL	B	RASSET	E
POTOMAC	A	PROVIG	C	SUBSTRATUM	C	RAGO	C	RASTUS	C
POTOSI	A	PROVO	D	PYWELL	D	RAGPIE	D	RATAKE	D
POTRATZ	C	PROVO BAY	D	QUAFEND	D	RAGSDALE	B/D	RATHBUN	C
POTSDAM	C	PROW	D	QUAKER	D	RAGSDALE, OVERWASH	B	RATHDRUM	B
POTTER	C	PRUDY	B	QUAKERTOWN	B	RAGTOWN	C	RATLAKE	D
POTTINGER	B	PRUE	B	QUAM	B/D	RAHAL	C	RATLEFLAT	B
POTTS	B	PRUITTON	B	QUAMON	A	RAHM	A	RATLIFF	B
POTTSBURG	B/D	PRUNIE	D	QUANAH	B	RAMWORTH	B	RATON	D
POUDRE	D	PRYOR	C	QUANDER	E	RAIL	D	RATSOV	C
POUJADE	D	PSUGA	B	QUANTICO	B	RAILCITY	B	RATTLER	D
POULSBO	D	PTARMIGAN	C	QUARLES	D	RAINBOW	C	RATTO	C
POUNCEY	D	PUAPUA	D	QUARTZBURG	D	RAINEY	C	RATTO, STONY	D
POVERTY	D	PUAULU	A	QUARTZVILLE	B	RAINIER	C	RAUB	C
POVEY	B	PUCHYAN	B	QUARZ	C	RAINO	D	RAUGHT	B
POWDER	B	PUDDLE	B	QUATAMA	C	RAINS	B/D	RAUVILLE	D
POWDERHORN	C	PUERCO	D	QUAY	B	RAINS, FLOODED	D	RAUZI	B
POWDERWASH	C	PUERTA	D	QUAZO	D	RAINSBORD	C	RAVALLI	D
POWEEN	C	PUERTECITO	D	QUEALMAN	D	PAINSVILLE	B	RAVALLI, BEDROCK	B
POWELL	C	PUETT	D	QUEALY	C	RAIRDENT	E	SUBSTRATUM	B
POWER	B	PUFFER	D	QUEBRADA	D	RAISIO	C	RAVEN	A
POWERLINE	C	PUGET	D	QUEENY	D	RAKANE	D	RAVENDALE	D
POWLEY	D	PUGET, PROTECTED	C	QUEETS	B	RAKE	D	RAVENELL	D
POWMENT	C	PUGSLEY	C	QLEHADD	C	RAKIED	C	RAVENNA	C
PONNAHKEE	B	PUHI	B	QUENZER	D	RALEIGH	D	RAVENSWOOD	C
PONWATKA	C	PUHIMAU	D	QUERC	D	RALLOD	D	RAVIA	C
POY	D	PUICE	C	QUERENCIA	C	RALLS	B	RAVOLA	B
POYGAN	D	PULA	C	QUETICO	D	RALPH	B	RAWAH	C
POYNDR	B	PULANTAT	C	QUICKSELL	C	RALPHSTON	B	RAWE	B
POZO	C	PULASKI	B	QUICKSILVER	D	RALSEN	D	RAWLES	C
POZO BLANCO	B	PULCAN	C	QUICKVERT	C	RAMADERO	B	RAWLINS	B
PRAG	C	PULEHU	B	QUIDEN	B	RAMBLA	C	RAWSON	B
PRAIRIEVILLE	B	PULEXAS	B	QUIENSABE	C	RAMBOUILLET	B	RAWSONVILLE	C
PRAMISS	C	PULLMAN	D	QUIETUS	C	RAMELLI	D	RAYBURN	D
PRATHER	C	PULPIT	C	QUIGLEY	B	RAMIRES	C	RAYEX	D
PRATLEY	C	PULS	D	QUIHI	C	RAMMEL	C	RAYFORD	C
PRATT	A	PULSIPHER	D	QUILCENE	C	RAMO	C	RAYLAKE	D
PRAEACHER	B	PULTNEY	C	QUILLAYUTE	B	RAMONA	B	RAYMONDVILLE	D
PRAEKNESS	B/D	PUMEL	D	QUILTOSA	D	RAMONA, HARD	C	RAYNE	B
PRAETORSON	B	PUMEL, NONGRAVELLY	C	QUILT	D	SUBSTRATUM	D	RAYNESFORD	B
PREBISH	C/D	PUMPER	B	QUINA	B	RAMPART	B	RAYNHAM	C
PREBLE	D	PUNA	A	QUINCY	A	RAMPARTER	B	RAYNOLDSON	B
PRELD	B	PUNALUU	D	QUINLAN	C	RAMPS	B	RAYNHILL	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

RAYPOL	C	REDSTONE	A	RENOX	B	RICOT	C	RITIDIAN	D
RAZ	D	REDSUN	D	RENSHAW	B	RICREST	B	RITNER	C
RAZITO	A	REDTHAYNE	B	RENSLOW	B	RIDD	C	RITO	C
RAZOR	C	REDTOM	B	RENSSELAER	B/D	RIDDLES	B	RITTER	B
RAZORBA	B	REDVALE	C	RENSSELAER,	C	RIDENBAUGH	D	RITTMAN	C
RAZORT	B	REDDVIEW	B	NONSTRATIFIED		RIDGE	B	RITZ	D
RAZSUN	D	REDDVIEW, WET	C	SUBSTRATUM		RIDGEBURY	C	PITZ, DRAINED	C
READING	B	REDVINE	C	RENTILL	E	RIDGECREST	C	RITZCAL	B
READINGTON	C	REDWASH	D	RENTON	D	RIDGEDALE	B	RITZVILLE	B
READLYN	B	REE	B	RENTON, DRAINED	C	RIDGELAND	B/D	RIVALIER	B
REAGAN	B	REEBOK	D	RENTSAC	D	RIDGELAWN	D	RIVERDALE	A
REAKOR	B	REED	D	RENTZEL	C	RIDGELAWN, WET	D	RIVERHEAD	B
REAL	D	REED, DRAINED	C	REPARADA	D	RIDGELITE	D	RIVEROAD	B
REALLIS	B	REED, PROTECTED	C	REPP	B	RIDGEPORT	B	RIVERSIDE	A
REAP	D	REEDER	B	REPPART	B	RIDGEVIEW	D	RIVERTON	B
REARDAN	C	REEDER, COOL	C	REPUBLIC	B	RIDGEVILLE	B	RIVERVIEW	B
REAVILLE	C	REEDSBURG	C	RESCUE	B	RIDGEWOOD	C	RIVIERA	C/D
REAVIS	B	REEDSPORT	C	RESNER	B	RIDIT	C	RIVIERA,	D
REBA	C	REEDY	D	RESORT	D	RIDLEY	C	DEPRESSIONAL	
REBEL	B	REEFRIDGE	D	RESOTA	A	RIDOTT	C	RIVIERA, LIMESTONE	B/D
RECAPTURE	B	REELFOOT	C	RESTING	C	RIEDEL	C	SUBSTRATUM	
RECK	D	REEPO	C	RESTON	D	RIEDTOWN	C	RIVIERA, LIMESTONE	D
RECLUSE	B	REESE	C	RET	D	RIEPE	C	SUBSTRATUM,	
RED BAY	B	REESER	C	RETRIEVER	D	RIESEL	C	DEPRESSIONAL	
RED BLUFF	C	REESVILLE	C	RETROP	C	RIETBROCK	C	RIVRA	D
RED BLUFF,	B	REEVES	B	RETRYDE	B	RIFLE	A/D	RIXIE	C
GRAVELLY		REFLECTION	B	REVA	D	RIGA	D	RIXON	C
RED BUTTE	B	REFUGE	C	REVEL	C	RIGDON	C	RIZ	D
RED HILL	B	REGAL	B/D	REVENTON	B	RIGGINS	D	RIZNO	D
RED HOOK	C	REGAN	B/D	REVERE	B/D	RIGGS	D	RIZOZO	D
RED ROCK	B	REGENT	C	REVIT	C	RIGLEY	B	ROANE	C
RED SPUR	B	REGGAD	B	REWARD	B	RIGOLETTE	C	ROANHIDE	C
REDARROW	D	REGGEAR	D	REXBURG	B	RILEY	B	ROANDKE	D
REDBANK	B	REGGEAR, COOL	C	REXFORD	C	RILLA	C	ROARING	B
REDBELL	B	REGNAPS	C	REXMONT	D	RILLIND	B	ROB POY	C
REDBIRD	B	REGNIER	D	REXOR	A	RILLITO	B	ROBANA	B
REDBOW	C	REMBURG	C	REYAE	B	RIMER	C	ROBBS	D
REDBY	B	REMFIELD	B	REYES	D	RIMINI	A	ROBCO	C
REDCAMERON	D	REMFIELD	C	REYNOSA	B	RIMROCK	D	ROBFR	C
REDCAN	D	REMH	C	REYWAT	D	RIMTON	C	ROBERTSDALE	C
REDCAP	B	REICISS	B	REZAVE	D	RIN	B	ROBERTSVILLE	B
REDCHIEF	C	REICHEL	B	RHAME	B	RINCON	C	ROBIN	B
REDCLIFF	C	REIFF	B	RHEA	D	RINDA	D	ROBINETTE	B
REDCLOUD	B	REILLY	A	RHINEBECK	B	RINDGE	D	ROBINSONVILLE	B
REDCO	D	REINA	D	RHOADES	D	RINDGE, DRAINED	C	ROBOZO	C
REDCREEK	D	REINACH	B	RHDAME	C	RINEARSON	B	ROBROOST	B
REDDALE	D	REINER	B	RHOAMETT	C	RINEY	B	ROBSON	D
REDDICK	B/D	REKOP	D	RHOAMETT, STONY	C	RING	C	ROBY	C
REDDING	D	RELAN	B	RHDNE	B	RINGLE	B	ROCA	D
REDEYE	B	RELAY	B	RIB	B/D	RINGLING	A	ROCHE	D
REDFEATHER	D	RELIANCE	C	RIBERA	C	RINGO	D	ROCHELLE	D
REDFIELD	B	RELIZ	D	RIBHILL	B	RINGWOOD	B	ROCHER	B
REDFIELD, WET	C	RELLEY	B	RICCO	D	RINKER	C	ROCHESTER	A
REDFLAME	B	RELSOB	B	RICEBORD	B/D	RIO	D	ROCID	C
REDHOUSE	B	RELUCTAN	C	RICECROSS	B	RIO ARRIBA	D	ROCK CREEK	D
REDIG	B	REMBERT	D	RICERT	B	RIO DIABLO	C	ROCK RIVER	C
REDINGTON	D	REMEDIOS	C	RICETON	B	RIO GRANDE	B	ROCKABIN	C
REDLAKE	D	REMLAP	C	RICEVILLE	C	RIO LAJAS	A	ROCKAWAY	C
REDLANDS	B	REMLIK	A	RICH	C	RIO PIEDRAS	B	ROCKBRIDGE	B
REDLEVEL	C	REMHIT	B	RICH, WET	D	RIDBLANCHO	C	ROCKCASTLE	D
REDLOGE	D	REMNOY	D	RICHARDSON	B	RIDCONCHO	C	ROCKDALE	A
REDMANSON	B	REMOTE	B	RICHENS	C	RIDLINDA	C	ROCKDALE	B
REDMOND	C	REMSEN	C	RICHEY	C	RIDN	B	ROCKERS	C
REDMOUNT	B	REMUNDA	D	RICHFIELD	B	RIPEC	D	ROCKFIELD	B
REDNIK	B	REMUS	B	RICHFORD	A	RIPLEY	B	ROCKFORD	B
REDNIK, NONSTONY	C	RENBAC	D	RICHLAND	B	RIPLEY,	C	ROCKHOUSE	A
REDNUN	C	RENCALSON	C	RICHMOND	D	SALINE-ALKALI,		ROCKINCHAIR	C
REDOLA	B	RENCOT	D	RICHSUM	B	WET		ROCKLIN	D
REDONA	B	RENFRON	D	RICHTER	B	RIPON	B	ROCKLY	D
REDONDO	B	RENICK	D	RICHVALE	B	RIPPLE	B	ROCKOA	B
REDPOP	C	RENISH	C	RICHVIEW	C	RIPPONWAM	C	ROCKTON	B
REDPORT	B	RENNER	B	RICHVILLE	C	RIRIE	B	ROCKWELL	B/D
REDRIDGE	B	RENNIE	D	RICHWOOD	B	RISBECK	B	ROCKWOOD	C
REDRIVER	C	RENNIE, DRAINED	C	RICKER	A	RISLEY	D	ROCKY FORD	B
REDROB	C	RENNIE, PROTECTED	C	RICKETTS	C	RISLEY, STONY	C	ROCKYBAR	B
REDSPEAR	D	RENO	D	RICKMAN	C	RISUE	D	RODDAD	D
REDSPRINGS	B	RENHILL	C	RICKMORE	C	RISWOLD	B	RODELL	D
REDSPRINGS, GRADED	D	RENOL	C	RICKREALL	D	RITA	D	RODED	D
REDSTOE	B	RENOVA	B	RICKS	A	RITCHEY	D	RODESSA	D

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

RODIE	B	ROSENDALE	C	RUBY	B	SARENVO	B	SANINIEGO	C
RODMAN	A	ROSEWALL	D	RUBYHILL	C	SABINA	C	SANISH	D
RODRUF	D	ROSEVILLE	B	RUCH	B	SABINE	A	SANMANISH	D
ROEBUCK	D	ROSEWOOD	A/D	RUCKER	F	SABLE	B/D	SANDIST	D
ROELLEN	D	ROSEWOOD, WET	D	RUCKLES	D	SAC	B	SANDR	D
ROEMER	C	ROSEWORTH	D	RUCLICK	C	SACHEEN	A	SAMPSEL	D
ROETEX	D	ROSHE SPRINGS	D	RUDD	D	SACHETT	C	SAMPSON	B
ROFISS	B	ROSHE SPRINGS,	C	RUDLEY	D	SACO	D	SANSIL	D
ROGAN	B	DRAINED	B	RUDEEN	C	SACRAMENTO	D	SANSULA	B/D
ROGERSON	D	ROSHOLT	B	RUDYARD	F	SACTUS	D	SAN ANDREAS	B
ROGERT	D	ROSINE	B	PUEDLOFF	E	SACUL	C	SAN ANTON	B
ROGRUBE	B	ROSITAS	A	RUELLA	E	SADDLE	C	SAN ANTONIO	C
ROGUE	B	ROSITAS, CLAYEY	C	RUFUS	D	SADDEBACK	C/D	SAN ARCACIO	C
ROHAN	D	SUBSTRATUM	D	RUGAR	C	SADDELEGAP	B	SAN BENITO	B
ROHNERVILLE	B	ROSITAS, LOAMY,	C	RUGG	E	SADDLEROCK	D	SAN EMIGDIO	B
ROHONDA	C	WET	C	RUGLES	F	SADER	D	SAN GERMAN	D
ROHRERSVILLE	D	ROSITAS, WET	C	RUHE	D	SADIE	C	SAN ISABEL	A
ROIC	D	ROSLYN	B	RUIJOSO	C	SADLER	C	SAN JOAQUIN	D
ROJO	C	ROSMAN	B	RUINPOINT	B	SAFFELL	B	SAN JON	C
ROLETTE	C	ROSNEY	B	RUIZ	B	SAG	B	SAN JOSE	B
ROLFE	C	ROSS	B	RUKO	D	SAGANING	A/D	SAN JUAN	B
ROLIE	D	ROSSBURG	B	RULE	B	SAGASER	B	SAN LUIS	C
ROLLISS	B/D	ROSSFIELD	B	RUMBLECREEK	B	SAGE	D	SAN MATEO	B
ROLLA	C	ROSSMOOR	B	RUMBO	C	SAGECREEK	B	SAN MIGUEL	D
ROLLINGSTONE	C	ROSSMOYNE	C	RUMFORD	B	SAGEDALE	C	SAN SABA	D
ROLDC	D	ROSWELL	A	RUMLEY	B	SAGEHILL	B	SAN SEBASTIAN	B
ROLOFF	C	ROSY	B	RUMNEY	C	SAGEMOOR	B	SAN SIMEON	D
ROMBERG	B	ROTAMER	E	RUMPAH	E	SAGERS	B	SAN TIMOTED	C
ROMBO	C	ROTAN	C	RUMPLE	C	SAGERTON	C	SAN YSIDRO	C
ROME	B	ROTHICAN	B	RUMUNG	C	SAGLE	C	SANCHEZ	D
ROMEQ	D	ROTHIEMAY	C	RUNE	C	SAGO	D	SANCLEMENTE	D
ROMERD	D	ROTHSAY	E	RUNEBERG	C/D	SAGOUSPE	C	SANDALL	C
ROMGAN	C	ROTIKOM	F	RUNGE	P	SAGOUSPE, DRAINED	B	SANDBRANCH	B
ROMIA	B	ROTD	C	RUNN	D	SAGUACHE	B	SANDCREEK	D
ROMINE	B	ROTTULEE	C	RUPLE	C	SANALIE	B	SANDERSON	B
ROMINELL	C	ROUBIDEAU	C	RURLEY	A	SAHUARITA	B	SANDHILL	B
ROMNELL	B/D	ROUEN	C	RUSCO	C	SAID	B	SANDIA	B
ROMSTOCK	B	ROUGHCREEK	D	RUSCO, PONDED	D	SAIDO	F	SANDOSE	A
ROMULOCK	D	ROUGHLOCK	E	RUSE	D	SAILBOAT	C	SANDOVAL	D
ROMAN	D	ROUGHMOUNT	C	PUSH	E	SAILBOAT, DRAINED	B	SANDRIDGE	A
POND	C	ROUND BUTTE	D	RUSHMORE	B/D	SAIPAN	B	SANDSPRING	A
PONDEAU	A/D	ROUNDAABOUT	C	RUSHTOWN	A	SAL	D	SANDUN	B
PONDELL	B	ROUNDARN	E	RUSHVILLE	E	SALADAR	D	SANDUSKY	D
PONDOWA	B	ROUNDHEAD	B/D	RUSG	B	SALADON	D	SANDVIEW	F
PONNEBY	C	ROUNDOR	C	RUSON	C	SALAL	C	SANDWASH	C
PONSEL	B	ROUNDTOP	C	RUSS	F	SALAMATOF	D	SANDWICK	B
PONSON	B	FOUNDUP	C	RUSSELL	E	SALANDER	R	SANELI	D
PONNEY	D	ROUNY	C	RUSSIAN	E	SALAS	C	SANFORD	D
ROSET	C	ROUSSEAU	A	RUSSLER	C	SALCHAKET	B	SANGER	B
ROOSEVELT	C	ROUTON	D	RUSTICO	F	SALCO	B	SANGO	C
RODT	B/D	ROUTT	C	RUSTIGATE	C	SALEM	E	SANHEDRIN	B
RODTL	C	ROYAL	D	RUSTON	R	SALERATUS	C	SANIBEL	B/D
ROPER	B/D	ROWDEN	C	PUSTY	B	SALERNO	B/D	SANILAC	B
ROSALIE	B	ROWDY	E	RUTAE	B	SALGA	C	SANJE	B
ROSAMOND	B	ROWE	D	PUTERSVILLE	C	SALIDA	A	SANLOREN	B
ROSAMOND,	C	ROWEL	D	PUTHERFORD	C	SALINAS	B	SANPETE	B
SALINE-ALKALI,		ROWENA	C	PUTLAND	C	SALISBURY	C	SANPITCH	C
FLOODED		ROWLAND	C	RUTLEGE	B/D	SALIX	B	SANDPIL	D
ROSANE	D	ROWLEY	C	RYAN	D	SALKUN	F	SANSARC	D
ROSANKY	C	ROYAL	D	RYAN PARK	B	SALLISAW	B	SANTA	D
ROSARIO	C	ROXANA	B	RYARK	A	SALLYANN	C	SANTA CLARA	C
ROSCOE	D	ROXBURY	B	RYCO	D	SALMO	C/D	SANTA FE	D
ROSCOMON	A/D	ROXER	S	RYDE	C	SALMON	B	SANTA ISABEL	D
ROSE CREEK	C	ROXTON	D	RYDER	C	SALONIE	D	SANTA LUCIA	C
ROSE CREEK,	B	ROY	B	RYDDLPH	C	SALT CHUCK	A	SANTA MARTA	C
DRAINED		ROYAL	B	RYEGATE	C	SALT LAKE	D	SANTA YNEZ	D
ROSE VALLEY	D	POYCE	C	RYELL	B	SALTAIR	D	SANTANA	D
ROSEBERRY	D	ROYGORGE	D	RYELL, SALINE	D	SALTER	B	SANTANELA	D
ROSEBLOOD	D	ROYOSA	A	RYEPATCH	C	SALTERY	D	SANTAQUIN	A
ROSEBOROUGH	B	ROYST	C	RYER	C	SALTESE	D	SANTAROSA	B
ROSEBUD	B	ROYSTONE	F	RYKER	B	SALTINE	C	SANTEE	D
ROSEBURG	B	ROZA	C	RYMAN	C	SALTON	D	SANTIAGO	B
ROSEDHU	B/D	ROZELVILLE	B	RYORP	C	SALUDA	C	SANTIAM	C
ROSEGLEN	B	ROZETTA	B	RYPOC	B	SALVISA	C	SANTO	B
ROSEHAVEN	B	RUZLEE	C	RYUS	B	SALZER	D	SANTO TOMAS	B
ROSEHILL	D	RUARK	B/D	SAAR	C	SALZER, PROTECTED	C	SANTONI	D
ROSELAND	B	PUBLICON	A	SABANA	D	SAMBA	D	SANWELL	B
ROSELLA	D	PUBIO	C/D	SABANA SECA	C	SANBRITO	B	SAPEHA	B
ROSELMS	D	RUBSON	B	SABE	B	SANDAY	D	SAPELO	D

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

SAPINERO	B		SAWTOWN	C		SCOTCH	D		SEITZ	C		SHAKER	C
SAPKIN	C		SAWYER	C		SCOTCO	A		SEJITA	D		SHAKESPEARE	C
SAPPHIRE	C		SAXBY	D		SCOTIA	B		SEKIL	B		SHAKOPEE	C
SAPPINGTON	B		SAXON	C		SCOTT	D		SEKIU	D		SHALAKE	C
SARA	D		SAY	B		SCOTT LAKE	B		SELAH	B		SHALAKO	D
SARAGOSA	B		SAYBROOK	B		SCOTTCAS	B		SELBIT	B		SHALBA	D
SARASVILLE	D		SAYDAB	C		SCOTTIES	E		SELDEN	C		SHALCAR	D
SARALEGUI	B		SAYERS	A		SCOTTSVILLE	C		SELEVIN	D		SHALCAR, DRAINED	C
SARANAC	C/D		SAYLES	D		SCOUT	E		SELFRIDGE	B		SHALCLEAV	D
SARANAC, GRAVELLY SUBSTRATUM	C		SAYLESVILLE	C		SCRABBLERS	F		SELIA	C		SHALET	D
SARAPH	D		SAYNER	A		SCRANTON	A/D		SELIGMAN	D		SHALONA	B
SARATON	C		SAYPO	C		SCRAVO	B		SELKIRK	C		SHALPER	D
SARAZAN	B		SAZI	C		SCRIBA	C		SELLE	B		SHAM	D
SARZEN	B		SCALA	B		SCRIPNER	C		SELLERS	B/D		SHAMBC	B
SARBEN	B		SCALADE	D		SCRIVER	E		SELMA	B/D		SHAMEL	B
SARCILLO	D		SCALFAR	B		SCROGGIN	C		SELMAC	D		SHAMOCK	C
SARDINIA	C		SCALLEY	B		SCULLIN	C		SELON	B		SHANAHAN	B
SARDIS	C		SCAMMAN	D		SCUPPERNONG	D		SELTI	B		SHANDEP	B/D
SARGEANT	D		SCANDARD	C		SEABROOK	C		SELWAY	B		SHANE	D
SARILDA	C		SCANTIC	D		SEAFIELD	E		SEMIAMMOO	D		SHANGHAI	C
SARITA	A		SCAPONIA	B		SEAFORTH	B		SEMIAMMOO, DRAINED	C		SHANGHAI, DRAINED	B
SARKAR	D		SCAR	B		SEAGATE	A/D		SEMINOLE	D		SHANKLER	A
SARNOSA	B		SCARBORD	D		SEAGOVILLE	D		SEMPER	C		SHANO	B
SARONA	B		SCARIBOU	B		SEALY	B		SEN	B		SHANTA	B
SARPY	A		SCARPER	C		SEAMAN	E		SENCHELT	C		SHARATIN	B
SARTELL	A		SCATLAKE	D		SEAMAN, STRONGLY	C		SENECAVILLE	B		SHARESNOUT	C
SARUCHE	D		SCAVE	C		SALINE	C		SENSABAUGH	B		SHARKEY	D
SASABE	C		SCHAFFENAKER	A		SEAMAN, MODERATELY	C		SEQUATCHIE	E		SHARLAND	B
SASALAGUAN	C		SCHALLER	A		WET	A		SEQUIP	A		SHARON	B
SASCO	B		SCHAMBER	A		SEAQUEST	C		SEQUIDIA	C		SHARONDALE	B
SASKA	B		SCHAMP	C		SEAP	E		SERDEN	A		SHARPS	C
SASPAMCO	B		SCHAPVILLE	C		SEARING	E		SERENE	C		SHARPSBURG	B
SASSAFRAS	B		SCHATTEL	C		SEARLA	B		SEROCO	A		SHARROTT	D
SASSER	B		SCHAUSON	D		SEARLES	C		SERPEN	C		SHARYANA	C
SATAGO	D		SCHAWANA	D		SEARSPORT	D		SERPENTANO	B		SHASER	B
SATANKA	C		SCHENCO	D		SEARSVILLE	D		SERPOD	C		SHASKIT	C
SATANTA	B		SCHERRARD	D		SEASTRAND	D		SERRANO	D		SHASTA	B
SATATTON	D		SCHLEY	B		SEATON	B		SERVILLETA	D		SHASTINA	B
SATELLITE	C		SCHMUTZ	B		SEATTLE	D		SESAME	C		SHATRUCE	C
SATILLA	D		SCHNEBLY	D		SEATTLE, DRAINED	C		SESPE	C		SHATTA	C
SATIN	C		SCHNEIDER	B		SEAVERSON	D		SESSIONS	D		SHATTUCK	B
SATSOP	B		SCHNIPPER	C		SEAWILLOW	B		SESSUM	C		SHAUSON	B
SATT	C		SCHNODORSON	C		SEBAGO	D		SET	C		SHAVAND	B
SATTLEY	B		SCHNORRUSH	B		SEBASTIAN	D		SETH	C		SHAVASH	C
SATTRE	B		SCHODSON	C		SEBASTOPOL	C		SETTERS	D		SHAYER	B
SATURN	B		SCHODENS	A		SEBEVA	E/D		SETTLEMENT	D		SHAWA	B
SATUS	B		SCHOFIELD	C		SEBREE	C		SETTLEMAYER	C		SHAWAND	A
SAUCEL	D		SCHOHARIE	C		SEBRING	B/D		SETTLEMAYER,	D		SHAWNUT	B
SAUCIER	C		SCHOLLE	B		SEBUD	B		SALINE-ALKALI	B		SHAY	D
SAUDE	B		SCHODDIC	D		SECCA	C		SETTLEMAYER,	D		SHAYLA	D
SAUGATUCK	C		SCHODLCRAFT	B		SECESH	B		FLOODED	B		SHEAR	C
SAUGUS	B		SCHODLEY	D		SECONSET	C		SETTLEMAYER, COOL	D		SHEAVILLE	D
SAUK	B		SCHODLEY, DRAINED	C		SECRET CREEK	B		SETTLEMAYER,	E		SHEBANG	D
SAULICH	D		SCHODLEY,	C		SECURITY	C		CHANNELED	C		SHEBEON	C
SAUM	B		PROTECTED	B		SED	C		SEVAL	C		SHEDADD	C
SAUNDERS	D		SCHODLHOUSE	D		SECALE	D		SEVENMILE	B		SHEDD	D
SAURIN	C		SCHODNER	D		SEDFIELD	D		SEVERN	B		SHEDHORN	C
SAUTER	B		SCHRADER	D		SEDGWAY	E		SEVIER	D		SHEECAL	B
SAUVIE	D		SCHRAP	D		SEDILLO	B		SEVILLE	D		SHEEGE	D
SAUVIE, MODERATELY WET	C		SCHRIER	B		SEDMAR	D		SEVY	E		SHEEK	B
SAUVIE, PROTECTED	B		SCHROCK	E		SEDRWOODLEY	C		SEWANEE	B		SHEEP CREEK	C
SAUVDLA	C		SCHROON	B		SEDWELL	C		SEWARD	B		SHEEPCAN	B
SAUZ	B		SCHUELKE	C		SEEDSKADEE	D		SEWELL	C		SHEEPHEAD	C
SAVAGE	C		SCHULINE	B		SEELEZ	A		SEXTON	C/D		SHEEPROCK	A
SAVAGETON	D		SCHUMACHER	B		SEELOVERS	C		SEYMOUR	C		SHEEPSHOT	B
SAVANNAH	C		SCHUSTER	B		SEELYEVILLE	B		SEZNA	A/D		SHEETIRON	C
SAVENAC	C		SCHUYLER	B		SEELYEVILLE,	D		SHAAK	D		SHEFFIELD	D
SAVO	C		SCIO	B		SLOPING	B		SHABLISS	D		SHEFFIT	D
SAVDIA	B		SCIOTOVILLE	C		SEEPRID	C		SHACK	B		SHEFFLEIN	B
SAVONA	C		SCISM	C		SEES	C		SHADELAND	C		SHELBIANA	B
SAWABE	D		SCITICO	C		SEEVEE	B		SHADELEAF	C		SHELBURNE	C
SAWATCH	B/D		SCITUATE	C		SEFFNER	C		SHADOW	B		SHELBY	B
SAWBUCK	B		SCLOME	B		SEGIDAL	D		SHADYGROVE	C		SHELBYVILLE	B
SAWCREEK	C		SCOAP	B		SEGNO	C		SHAFFTON	B		SHELD	B
SAWDUST	B		SCOBEY	C		SEGUN	C		SHAFTER	D		SHELL	B
SAWMILL	B/D		SCOGGIN	D		SEGURA	D		SHAGEL	D		SHELLABARGER	B
SAWTELL	C		SCODN	D		SEHOME	C		SHAGNASTY	C		SHELLBLUFF	B
SAWTELPEAK	D		SCODTENY	B		SEHORN	D		SHAKAMAK	C		SHELLCREEK	C
			SCORUP	C		SEIS	C		SHAKAN	C		SHELLDRAKE	A

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

SHELLROCK	A	SHOTGUN	C	SIMON	B	SKYHIGH	C	SNOWDANCE,	C
SHELMADINE	D	SHOTWELL	D	SIMONA	D	SKYKOMISH	B	MODERATELY WET	
SHELOCTA	B	SHOUNS	R	SIMONIN	B	SKYLICK	B	SNOWDON	D
SHELTON	C	SHOWALTER	C	SIMONTON	E	SKYLINE	D	SNOWLIN	B
SHENA	D	SHOWALTER, STONY	B	SIMPARK	D	SKYMR	D	SNOWMORE	C
SHENANDOAH	D	SHOWLOW	C	SIMPATICO	B	SKYROCK	D	SNOWSHOE	B
SHENKS	B/D	SHREE	B	SIMPSON	C	SKYVILLAGE	D	SNOWSLIDE	B
SHENON	B	SHREWDER	B	SIPS	D	SKYWAY	D	SNOWVILLE	D
SHENVAL	B	SHREWSBURY	C/D	SINAI	C	SLAB	D	SNUFFUL	C
SHEP	B	SHRINE	B	SINAMOX	B	SLABTOWN	B	SOAKPAK	B
SHEPAN	C	SHROE	C	SINCLAIR	C	SLACKS	C	SOAPCREEK	C
SHEPPARD	A	SHROUTS	D	SINGATE	D	SLAGLE	D	SOAPLAKE	D
SHEPSTER	D	SHUBUTA	C	SINGERTON	B	SLAPJACK	B	SOAR	C
SHERANDD	B	SHUE	C	SINGLETREE	C	SLATERY	C	SOBEGA	D
SHERAR	C	SHUKASH	A	SINGSAAS	B	SLAUGHTER	B	SOBOBA	A
SHERBURNE	C	SHUKSAN	C	SINKER	C	SLAUGHTERVILLE	B	SOBOL	C
SHERIDAN	B	SHULE	C	SINKSON	E	SLAVEN	C	SOBRANTE	B
SHERLESS	R	SHULLSBURG	C	SINLOC	C	SLAW	C	SOBSON	C
SHERLOCK	B	SHUPLA	C	SINNICE	E	SLAYTON	D	SOCORRO	C
SHERM	D	SHUMWAY	D	SINNIGAM	D	SLEEPER	C	SODA	B
SHERMORE	B	SHUPERT	C	SINTON	B	SLEETH	C	SODA LAKE	B
SHERRY	B/D	SHURLEY	A	SINUK	D	SLICKROCK	B	SODA LAKE, WET	C
SHERRY, STONY	D	SHUSTER	C	SION	B	SLIDECREEK	B	SODABAY	B
SHERRYL	B	SHUTTLE	B	SI OUX	A	SLIDELL	D	SODASPRING	B
SHERWOOD	B	SI	C	SI OUXON	R	SLIGHTS	C	SODERVILLE	A
SHEVLIN	C	SIBELIA	B	SIPPLE	B	SLIGHTING	C	SODHOUSE	D
SHIDLER	D	SIBLEY	B	SIPSEY	B	SLIKOK	D	SODUS	C
SHIELDS	C	SIBLEYVILLE	B	SIPPAK	A	SLIMBUTTE	B	SOELBERG	B
SHIFFER	C	SICKLES	B/D	SIRI	B	SLINGER	B	SOEN	C
SHILLY	C	SICKLESTEETS	B	SIROCD	C	SLIPBACK	C	SOFA	C
SHILDH	B/D	SIDDOWAY	A	SIRREF	D	SLIPPAN	B	SOFTSCRABBLE	C
SHIMA	C	SIDELL	B	SIRPETTA	C	SLOAN	B/D	SOFTSCRABBLE,	B
SHIMMON	C	SIDLAKE	C	SISK	C	SLOCAYE	D	RARELY FLOODED	
SHINAKU	D	SIDON	C	SISKIYOU	E	SLOCUM	C	SOGI	C
SHINBARA	D	SIEBEN	B	SISSETON	F	SLUICE	C	SOGN	D
SHINDLER	C	SIEBERT	A	SISSON	P	SLUKA	C	SOGO	B
SHINER	C	SIECHE	C	SISTEPS	A	SLY	E	SOGZIE	B
SHINGLE	D	SIELD	D	SITAP	E	SMACKOUT	B	SOMAPPY	B
SHINGLEMILL	D	SIEROCLIFF	C	SITDOWN	A	SMALL	C	SOJUR	D
SHINGLETOWN	C	SIERRA	B	SITES	C	SMALLCONE	D	SOLAK	D
SHINKEE	C	SIERRAVILLE	B	SIWELL	C	SMARTS	B	SOLAND	D
SHINNPEAK	D	SIESTA	D	SIXBEACON	E	SMAUG	B	SOLDATNA	B
SHINROCK	C	SIEVERS	C	SIXMILE	C	SMEDLEY	D	SOLDIER	C
SHIOCTON	C	SIFTON	B	SIZER	B	SMELTER	C	SOLDUC	B
SHIOYA	A	SIG	D	SKAGGS	C	SMILEY	B/D	SOLEDAD	B
SHIPLEY	B	SIGNAL	C	SKACIT	D	SMILEYVILLE	D	SOLIER	D
SHIPLEY,	C	SIGURD	B	SKAGWAY	C	SPILO	C	SOLIS	C
SALINE-ALKALI		SIKESTON	B/D	SKAMA	A	SMITTBORD	C	SOLLEKS	C
SHIPPA	D	SILAS	B	SKALAN	C	SMITDALE	B	SOLLER	D
SHIPROCK	B	SILAS, WET	C	SKAPANIA	B	SMITHNECK	C	SOLO	C
SHIPS	D	SILAS, GRAVELLY	C	SKAPO	C	SMITHNECK, DRAINED	B	SOLOMON	D
SHIPSME	B	SUBSTRATUM		SKANFE	C	SMITHTON	D	SOLONA	C
SHIRK	C	SILAWA	B	SKANID	B	SMITHVILLE	B	SOLWAY	B
SHIRLEY	B	SILCOX	B	SKATE	B	SMITHWICK	D	SOMBDRDORO	D
SHIRD	C	SILENT	D	SKEDADDLE	D	SMOCREEK	C	SOMBRERO	D
SHIRTAIL	B	SILEP	B	SKEIN	B	SMOKEY	D	SOMERS	B
SHIVELY	B	SILERTON	B	SKELLOCK	B	SMCLAN	C	SOMERVILL	C
SHIVIENY	B	SILHOUETTE	C	SKELON	C	SPYRNA	B/D	SOMSEN	B
SHIVLUM	B	SILI	C	SKELTON	C	SNAG	E	SOMAHNPIL	B
SHOALS	C	SILKIE	C	SKERRY	C	SNANOPISH	B	SONDDA	B
SHOAT	D	SILSTJD	A	SKIPC	B	SNAKE	C	SONLET	D
SHOBA	D	SILVA	C	SKIDMORE	B	SNAKE HOLLOW	A	SONOCAN	C
SHOEPEG	C	SILVER	C	SKINNER	P	SNAKELUM	B	SONDITA	B
SHOESTRING	B	SILVER CREEK	D	SKIPANON	B	SNAKER	D	SONOMA	C
SHOKEN	D	SILVERADD	B	SKIPOPA	D	SNAPP	C	SONOMA, MODERATELY	B
SHONKIN	D	SILVERBELL	C	SKIYOU	B	SNEAD	D	WET, SALINE	
SHONTIK	C	SILVERDOW	D	SKKOMISH	D	SNEFFELS	C	SONOMA, SALINE,	B
SHOOFLIN	D	SILVERCHIEF	C	SKKOPISH, DRAINED	C	SNELL	C	DRAINED	
SHOOFLY	D	SILVERCLIFF	B	SKDLY	B	SNELLING	B	SONOMA, STRATIFIED	D
SHOOK	C	SILVERDALE	A	SKOOKUM	C	SNELLMAN	B	SUBSTRATUM	B
SHOOKER	C	SILVERN	A	SKOS	D	SNIDER	C	SONOMA, DRAINED,	B
SHOREEK	C	SILVERTON	C	SKOWHEGAN	B	SNOMOMISH	D	SLIGHTLY SALINE	
SHOREWOOD	C	SILVIES	D	SKULL CREEK	C	SNONO	C	SONOMA, DRAINED,	B
SHORIP	C	SIMAS	C	SKULLGULCH	C	SNOOK	D	FLOODED	
SHORT CREEK	C	SIMCOE	C	SKULLWAK	D	SNPOC	E	SONOMA, DRAINED	B
SHORTCUT	D	SIMEON	A	SKUMPAM	C	SNDOUALMIE	C	SONORA	B
SHORTHORN	D	SIMERDI	B	SKUTUM	C	SNOTOWN	B	SONTAG	D
SHORTYORK	C	SIMMONT	C	SKYFERG	C	SNOW	B	SODLAKE	B
SHOSHONE	C	SIMODA	C	SKYHAVEN	C	SNOWDANCE	D	SODNAHBE	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

SOONAKER	C		SPINEKOP	B		STABLER	B		STEUBER	B		STRELNA, SILTY	B
SOOSAP	C		SPINEKOP, SALINE	C		STADY	B		STEVENS	B		SUBSTRATUM	B
SOPER	C		SPINEKOP,	C		STAFFORD	C		STEVENSON	B		STREVELL	B
SOQUEL	B		MODERATELY WET			STAGECOACH	B		STEWART	D		STRICKER	B
SORENSEN	B		SPINKS	A		STAHL	C		STEWVAL	D		STRICKLAND	C
SORF	C		SPINLIN	C		STAKE	C		STICKNEY	C		STRINGAM	B
SORRENTO	B		SPINNEY	B		STALEY	B		STIDHAM	B		STRINGTOWN	B
SORTER	D		SPIRES	D		STALLINGS	C		STIEN	B		STRINGTOWN, GRADED	C
SORUM	D		SPIRIT	C		STAMBAUGH	B		STIGLER	D		STROLE	C
SOSA	C		SPIRO	B		STANFORD	D		STILES	C		STROM	C
SOSTIEM	D		SPIVEY	B		STAMP	D		STILGAR	B		STROMAL	B
SOTIM	B		SPLAWN	C		STAMPEDE	D		STILL	B		STRONGHOLD	B
SOUGHE	D		SPLENDORA	C		STAN	B		STILLMAN	B		STRONGHURST	B
SOULAJULE	C		SPLITEN	D		STANDLEY	C		STILLWATER	C		STROUPE	C
SOUTHACE	B		SPLITRO	D		STANDUP	B		STILSKIN	D		STROZI	C
SOUTHAM	D		SPLITTOP	C		STANEY	D		STILSON	B		STRYCH	B
SOUTHFORK	D		SPOFFORD	D		STANFIELD	C		STIMCA	B		STRYKER	C
SOUTHGATE	D		SPOFDRE	C		STANISLAUS	C		STIMSON	D		STUBBLEFIELD	C
SOUTHMOUNT	C		SPOKANE	C		STANISLAUS, WET	D		STINES	B		STUBBS	C
SOUTHRIDGE	B		SPOKEL	B		STANROD	C		STINGAL	B		STUCKY	B
SOUTHWICK	C		SPONSELLER	B		STAPALOOD	B		STINGDORN	D		STUDEBAKER	B
SOWCAN	B		SPOOL	D		STAPLES	B/D		STIPE	C		STUKEL	D
SOWCAN, SOMEWHAT POORLY DRAINED	C		SPOONER	C/D		STAPLETON	B		STIRK	D		STUMBLE	A
SPAA	D		SPOTSYLVANIA	C		STAPP	C		STIRRUP	B		STUMPP	D
SPACE CITY	A		SPOTTSWOOD	B		STARBUCK	D		STIRUM	D		STUMPTOWN	B
SPADE	B		SPRABAT	B		STARGO	B		STIRUM, PONDED	D		STUNNER	B
SPADRA	B		SPRAY	B		STARHOPE	D		STISSING	C		STUNTZ	C
SPAGER	D		SPRECKELS	C		STARICHKOF	D		STIVERSVILLE	R		STURGEON	B
SPALDING	D		SPRIGGS	C		STARKEY	C		STOCKADE	B/D		STURGILL	D
SPANAN	D		SPRING	C		STARKS	C		STOCKBRIDGE	C		STURKIE	B
SPANAWAY	A		SPRINGDALE	A		STARLEY	D		STOCKEL	D		STUTTGART	D
SPANEL	D		SPRINGDALE, STONY	B		STARMAN	D		STOCKLAND	B		STUTZMAN	C
SPANG	B		SPRINGER	B		STARR	C		STOCKPEN	D		STUTZMAN, WET	D
SPANGENBURG	C		SPRINGERVILLE	D		STARVEDOUT	B		STODA	B		STUTZVILLE	C
SPANGENBURG, PONDED	D		SPRINGFIELD	D		STASER	E		STODICK	D		STYERS	D
SPANGLER	C		SPRINGGULCH	B		STATE	B		STOHLMAN	B		STYX	B
SPARANK	D		SPRINGLAKE	A		STATELINE	D		STOKES	D		SUAK	C
SPARHAM	D		SPRINGMEYER	B		STATLER	B		STOKLY	B		SUBACO	B
SPARKHULE	D		SPRINGSTEEN	C		STATZ	D		STOMAR	C		SUBLETTE	D
SPARMO	B		SPRINGWATER	C		STAVELY	B		STONEBERGER	D		SUBLIGNA	B
SPARR	C		SPROUL	D		STAYTON	D		STONEBURG	B		SUBWELL	B
SPARTA, SILTY CLAY LOAM SUBSTRATUM	B		SPRUCEDALE	D		STEARNS	D		STONEHAM	B		SUCARNDOOCHEE	D
SPARTA, LOAMY SUBSTRATUM	A		SPUD	C		STECOAM	B		STONEHEAD	C		SUCCESS	A
SPARTA, MAAT>50	A		SPUDROCK	C		STECUM	C		STONELICK	B		SUCCOR	D
SPARTA, MAAT<50	A		SPUKWUSH	B		STEED	A		STONELL	B		SUCHES	B
SPARTA, BEDROCK SUBSTRATUM	A		SPUR	B		STEEDMAN	D		STONER	B		SUDBURY	B
SPASPREY	C		SPURGER	C		STEEDMAN, STONY	C		STONEVILLE	B		SUDDUTH	C
SPEAKER	C		SPURLOCK	B		STEEKLE	C		STONEWALL	C		SUDLEY	B
SPEAKS	A		SQUALICUM	B		STEELE	C		STONWELL	A		SUDWORTH	B
SPEARFISH	D		SQUALLY	B		STEENS	C		STONO	B/D		SUEPERT	C
SPEARHEAD	B		SQUAW	B		STEEPCAN	D		STONYFORD	D		SUEY	B
SPEARMAN	B		SQUAWCREEK	D		STEESE	B		STODKMOOR	C		SUFFIELD	C
SPEARVILLE	C		SQUAWROCK	C		STEEVER	B		STORDEN	B		SUFFOLK	B
SPECIE	B		SQUAWTIP	C		STEFF	C		STORLA	B		SUGAKOOL	B
SPECK	D		SQUIRES	C		STEGALL	C		STORMITT	B		SUGARBOWL	B
SPECTACLE	C		ST. ALBANS	B		STEIGER	A		STOTT	C		SUGARDEE	B
SPECTER	C		ST. ANTHONY	B		STEILACOOM	C		STOUGH	C		SUGARLOAF	B
SPEELYAI	D		ST. AUGUSTINE	C		STEINAUER	B		STOUT	D		SUGLO	B
SPEER	B		ST. AUGUSTINE,	B		STEINBECK	B		STOVMO	C		SUISUN	D
SPEIGLE	B		ORGANIC	D		STEINSBURG	C		STOWE	C		SULA	B
SPENARD	D		SUBSTRATUM			STEIWER	C		STOWELL	D		SULLIVAN	B
SPENCER	B		ST. CHARLES	B		STELLA	C		STOY	C		SULLY	B
SPENLO	B		ST. CLAIR	D		STELLAR	C		STRABER	C		SULOAF	B
SPENS	A		ST. ELMO	A		STEMBER	C		STRAHAN	B		SULPHURA	D
SPERRY	C/D		ST. GEORGE	B		STEMILT	B		STRAIGHT	C		SULSAVAR	B
SPEXARTH	C		ST. GEORGE, SALINE	C		STEMLEY	C		STRANDLINE	B		SULTAN	C
SPHINX	D		ST. GEORGE, WET	D		STEMPLE	B		STRANDQUIST	B/D		SUMAN	B/D
SPICER	B/D		ST. HELENS	B		STENDAL	C		STRAT	B		SUMAS	D
SPICERTON	D		ST. IGNACE	D		STEPHEN	C		STRATFORD	B		SUMATRA	B
SPICEWOOD	C		ST. JOHNS	B/D		STEPHENVILLE	B		STRATTON	C		SUMINE	C
SPIKE	B		DEPRESSIONAL	D		STEPROCK	B		STRAW	D		SUMMERFIELD	D
SPILLCO	B		ST. LUCIE	A		STEPSTONE	B		STRAWN	B		SUMMERS	B
SPILLVILLE	B		ST. MARTIN	D		STEPTOE	B		STREATOR	B/D		SUMMERTON	B
SPILOCK	D		ST. MARYS	B		STERLING	B		STRELNA	C		SUMMERVILLE	D
			ST. NICHOLAS	D		STERRETT	D		STRELNA,	B		SUMMIT	C
			ST. ONGE	B		STETSON	B		LACUSTRINE	D		SUMMITVILLE	C
			ST. PAUL	B		STETTER	D		SUBSTRATUM			SUMPF	D
			ST. THOMAS	D		STEBEN	B		STRELNA, TILL	B		SUNTER	C
									SUBSTRATUM			SUMTERVILLE	C

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

SUNYA	D		SWANTOWN	D		TACOMA	D		TANQUE	B		TEHAMA	C
SUN	D		SWANVILLE	C		TACONIC	C/D		TANSEM	B		TEHRAN	A
SUNAPEE	B		SWANWICK	D		TACDOOSH	E/D		TANTALUS	B		TEIGEN	C
SUNBURG	B		SWAPPS	C		TADLOCK	C		TANTILE	C/D		TEJA	D
SUNBURST	C		SWARTSWOOD	C		TAFFOM	B		TANWAX	D		TEJABE	D
SUNBURY	B		SWARTZ	D		TAFOYA	C		TANWAX, DRAINED	C		TEJANA	B
SUNCITY	D		SWASEY	D		TAFT	C		TANYARD	C		TEKENINK	B
SUNCOOK	A		SWASTIKA	C		TAFTOWN	B		TAOPI	B		TEKISON	C
SUND	C		SWAUK	D		TAFUNA	A		TAPCO	D		TEKLANIKA	A
SUNDANCE	B		SWAYNE	C		TAGGART	C		TAPIA	B		TEKOA	C
SUNDAY	A		SWEATMAN	C		TAGLAKE	B		TAPICITOES	D		TEKOA, EXTREMELY	B
SUNDELL	B		SWEDE	E		TAKHENITCH	E		TAPPAN	E/D		STONY	B
SUNDDOWN	A		SWEEN	C		TAKOMA	B		TARA	B		TELA	B
SUNEY	B		SWEENEY	B		TAKOULA	D		TARBOPO	A		TELCHEM	B
SUNFIELD	B		SWEET	C		TAKQUATS	B		TARGMEE	C		TELECAN	B
SUNLIGHT	D		SWEETAPPLE	B		TAINTOR	C/D		TARKINGTON	C		TELEFONO	C
SUNNYHAY	D		SWEETGRASS	B		TAJD	C		TARKID	D		TELEMON	D
SUNNYSIDE	B		SWEETWATER	D		TAKEUCHI	C		TARKLIN	C		TELEPHONE	D
SUNNYVALE	C		SWEITBERG	C		TAKILMA	B		TARLOC	B		TELESCOPE	A
SUNRAY	B		SWEITING	C		TAKOTNA	B		TARNACH	D		TELFER	A
SUNRISE	C		SWEM	C		TAKPOCHAD	D		TARNAV	B		TELFERNER	D
SUNSET	B		SWENODA	E		TALAG	D		TARPLEY	D		TELL	B
SUNSHINE	C		SWIFT	B		TALAMANTES	E		TARR	A		TELLER	B
SUNSWEEP	C		SWIFT CREEK	B		TALANTE	D		TARRANT	D		TELLICO	B
SUNUP	D		SWIFTON	B		TALAPUS	E		TARRETE	D		TELLMAN	B
SUNY	D		SWIMLEY	C		TALBOT	C		TARRYALL	C		TELLURA	C
SUDMI	C		SWIMS	B		TALCO	D		TARRYTOWN	D		TELOS	C
SUP	B		SWINGLER	B		TALCOT	B/D		TASAYA	C		TELSTAD	C
SUPAN	B		SWINGLER, WET.	C		TALIHINA	D		TASCOSA	B		TEMAN	B
SUPERIOR	D		STRONGLY SALINE	D		TALKEETNA	E		TASSEL	D		TEMBLOR	D
SUPERSTITION	A		SWINGLER, WET	C		TALLA	C		TASSELMAN	D		TEMESCAL	D
SUPERVISOR	C		SWINK	D		TALLAC	B		TASSO	B		TEMO	C
SUPPLEE	B		SWINOMISH	C		TALLADEGA	C		TATAI	C		TEMPLE	C
SUR	C		SWINT	B		TALLAPOOSA	C		TATE	B		TEMPLETON	C
SURFSIDE	D		SWISBOR	D		TALLEYVILLE	B		TATERHEAP	B		TEMVIK	B
SURGFH	C		SWISSHELM	E		TALLODBOX	C		TATIYEE	C		TENABO	D
SURGH	B		SWISSTAG	B		TALLS	E		TATLUM	D		TENAMA	B
SURNUF	B		SWISSVALE	D		TALLULA	E		TATOUCHE	B		TENAS	C
SURPLUS	C		SWITCRACK	C		TALLY	B		TATTON	D		TENCEE	C
SURPRISE	B		SWITZERLAND	B		TALMAGE	B		TATUM	E		TENDDY	D
SURRENCY	D		SWOPE	C		TALMO	A		TAUNTON	C		TENERIFFE	A
SURRETT	C		SWORMVILLE	C		TALMOON	D		TAVARES	A		TENEX	E
SURVEYORS	B		SWYBERT	C		TALOKA	D		TAWAH	D		TENINO	C
SURVYA	C		SYBLON	D		TALPA	D		TAWAS	A/D		TENMILE	C
SUSANNA	C/D		SYCAMORE,	B		TALQUIN	E/D		TAWCAV	C		TENND	D
SUSANVILLE	D		MODERATELY WET.			TALUCE	D		TAYLOR	C		TENDRIO	D
SUSIE CREEK	C		SALINE			TAPA	E		TAYLOR CREEK	C		TENOT	C
SUSITHA	B		SYCAMORE,	C		TAMAMA	D		TAYLORSFLAT	B		TENPIN	D
SUSQUEHANNA	D		MODERATELY WET.			TAMALCO	D		TAYLORSFLAT,	C		TENRAG	D
SUTA	B		CLAYEY SUBSTRATUM			TAMALPAIS	C		SALINE-ALKALI	C		TENSAS	D
SUTCLIFF	B		SYCAMORE,	C		TAPANEEEN	E		TAYLORSVILLE	C		TENSED	C
SUTHER	C		MODERATELY WET			TAMBA	D		TAZLINA	A		TENSLEEP	B
SUTHERLAND	D		SYCAMORE, DRAINED	B		TAMELY	B		TEAGULF	C		TENSNDIR	B
SUTHERLIN	C		SYCAMORE, FLOODED	C		TAMPFLAT	D		TEAKEAN	B		TENVORRD	D
SUTKIN	B		SYCAMORE, CLAY	B		TAMFORD	D		TEALSON	D		TEO	B
SUTLEY	B		SUBSTRATUM			TAMMANY CREEK	B		TEALWHIT	D		TEOCULLI	D
SUTPHEN	D		SYCAN	A		TAMMING	E		TEANAWAY	B		TEPETE	B
SUTRO	C		SYCLE	B		TAMP	B		TEAPO	C		TEQUESTA	B/D
SUTTLE	B		SYCOLINE	D		TAMPICO	E		TEASDALE	E		TERADA	B
SUTTON	B		SYENITE	C		TANAMA	D		TEASPOON	D		TERBIES	B
SUVER	D		SYLACAUGA	D		TANANA	D		TEBAB	E		TERENCE	B
SUWANEE	B		SYLCO	C		TANANA, THAWED	B		TEBBS	E		TERFSA	D
SVEA	E		SYLVAN	B		TANANA, MODERATELY	C		TEBO	E		TERINO	D
SVENSEN	B		SYLVANIAM	C		WET			TECHADD	D		TERLAN	D
SVERDRUP	B		SYLVESTER	B		TANASSEE	B		TECHICK	B		TERLCO	B
SWAGER	C		SYLVIA	C		TANAZZA	E		TECO	E		TERLINGUA	D
SWAINOW	B		SYMCO	C		TANBARK	D		TECOLOTE	B		TERMINAL	D
SWAKANE	D		SYMERTON	B		TANDY	D		TECOMAR	D		TERMO	D
SWALER	D		SYNAREP	E		TANEUM	E		TECOPA	D		TEROMOTE	B
SWALESILVER	B		SYRACUSE	B		TANEY	C		TEDROW	C		TEROUGE	D
SWAMPYDRAW	D		SYRENE	B/D		TANGAIR	C		TEEL	B		TERRA CEIA	B/D
SWAN	D		SYFETT	C		TANGI	C		TEELER	B		TERRA CEIA, TIDAL	D
SWANBOY	D		TABECHEMING	C		TANGLE	C		TEEMAT	B		TERRA CEIA,	D
SWANDAD	B		TABERNASH	B		TANNA	D		TEESTO	D		FREQUENTLY	
SWANLAKE	B		TABLE MOUNTAIN	B		TANNAHILL	B		TEETERS	C		FLOODED	
SWANNER	D		TABLER	D		TANNER	C		TEEWINDT	D		TERRAD	C
SWANSEA	D		TABOR	D		TANNER, LOW	D		TEFTON	C		TERRETON	D
SWANSON	C		TACAN	B		PRECIPITATION	B		TEGURO	D		TERRETON, STONY	C
SWANTON	C/D		TACHI	D		TANDP	E		TEHACHAPI	C		TERRIL	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

TERRO	C		THURLONI	C		TINTON	A		TCLTEC	C		TORSID	D
TERRY	C		THURLOW	B		TINYTOWN	B		TOLUCA	B		TORTUGAS	D
TERT	D		THURMAN	A		TIOCANO	D		TOLVAR	B		TORULL	D
TERWILLIGER	C		THURMONT	B		TIOGA	B		TOMAH	B		TOSCA	B
TESAJD	B		THWOOD	C		TIPPAH	C		TOMAHAWK	C		TOSSER	B
TESSFIVE	D		TIAGOS	B		TIPPECANOE	B		TOMALES	E		TOSTON	C
TETHRICK	B		TIAK	C		TIPPER	C		TOMASAKI	C		TOTAVI	A
TETON	C		TIBAN	B		TIPPERARY	B		TOMAST	A		TOTELAKE	B
TETONIA	B		TIBBITTS	B		TIPPIPAH	B		TOMBAP	B		TOTEM	B
TETONKA	C/D		TIBS	C		TIPPO	C		TOMBSTONE	C		TOTIER	C
TETONVIEW	D		TIBSON	B		TIPTON	B		TOME	B		TOTO	B/D
TETONVILLE	D		TIBURONES	D		TIPTONVILLE	D		TOMEL	B		TOTTEN	C/D
TETONVILLE, GRAVELLY	C		TICA	D		TIPTOP	D		TOMERA	B		TOUCHET	C
TETOTUM	C		TICE	B		TIRO	B		TOMERA, CEMENTED SUBSTRATUM	D		TOUHEY	B
TEVIS	B		TICELL	D		TISEURY	D		TOMIACHI	A		TOULON	B
TEW	C		TICMOR	D		TISCH	D		TOMOKA	B/D		TOURN	C
TEWA	B		TICINO	C		TISDALE	C		TOMOTLEY	B/D		TOURNQUIST	B
TEX	B		TICKAPOD	D		TISHAR	D		TOMS	D		TOURS	B
TEXANA	D		TICKASON	B		TISONIA	B		TOMSHERRY	C		TOUTLE	A
TEXARK	D		TIDINGS	B		TISWORTH	B		TOMTY	E/D		TOUTLE, FLOODED	B
TEXLINE	B		TIDWELL	D		TITUS	D		TONALEA	C		TOVAR	C
TEXROY	B		TIDWELL	D		TITUSVILLE	D		TONASKET	A		TOWAVE	B
TEZUMA	C		TIERRA	B		TIVOLI	B		TONATA	C		TOWHEE	D
THACKER	D		TIERRANEGRE	B		TIVY	D		TONCANA	B		TOWNER	B
THACKERY	B		TIESIDE	D		TIVA	B		TONEY	B		TOWNLEY	C
THADEM	C		TIETON	E		TCA	B		TONGUE RIVER	B		TOWNSEND	C
THAGE	C		TIFFANY	B/D		TCADLAKE	F/D		TONIO	E		TOWSAHGY	B
THATCHER	B		TIFTON	B		TOANC	B		TONKA	A/D		TOXAWAY	B/D
THATUNA	C		TIGER CREEK	E		TOAND	E		TONKAVAR	B		TOY	D
THAYNE	B		TIGEROM	B		TOBICO	B		TONKAWA	C		TOYAH	B
THEBES	B		TIGIT	C		TOBIN	C		TONKEY	B/D		TOYUSKA	B
THEBO	D		TIGIWIN	B		TOBISH	B		TONKIN	B		TOZE	B
THEDALUND	C		TIGLEY	B		TOBLER	B		TONKIN, MODERATELY WET	C		TRABUCC	C
THEEDLE	C		TIGON	D		TOBDSA	D		TONPA	B		TRACHUTE	B
THEMAS	C		TIGUA	D		TOBY	D		TONPEN	C		TRACK	D
THEODOR	D		TIJERAS	B		TOCAL	B		TONOPAH	B		TRACK, DRAINED	C
THEON	D		TIKI	D		TOCALOMA	D		TONOP	B		TRACOSA	D
TERESA	B		TILFER	B/C		TOCCAN	B/C		TONDWEK	C		TRACY	B
TERIOT	D		TILFORD	B		TOCCCA	B		TONPA	B		TRADEDOLLAR	B
TERMO	D		TILLEDA	B		TOCK	B		TONSINA	E		TRAEER	B/D
TERMOPOLIS	D		TILLICUM	B		TOCUI	B		TONTI	D		TRAG	B
THESS	B		TILLMAN	C		TODDLER	C		TONUCO	B		TPAG, COOL	C
THETFORD	A		TILLMONT	B		TODETAV	B		TOOLES	C		TRAHAM	D
THETIS	B		TILLOU	C		TODDVILLE	C		TOLESBORD	B		TRAIL	A
THIEFRIVER	B/D		TILMA	C		TODDS	C		TOOMES	B		TRAILAMP	D
THIEL	B		TILSIT	C		TOEHEAD	C		TOONE	C		TRAILCREEK	C
THIESSEN	C		TILTON	E		TOEJA	E		TOONE, LOAMY SUBSTRATUM, STONY	D		TRAILHEAD	B
THIKE	D		TIMBALIEK	D		TOEM	C		TOP	E		TRAINER	B
THIOKOL	B		TIMBERG	C		TOGCHA	C		TOPENISH	D		TRAITORS	D
THIRST	D		TIMBERHEAD	B		TOGNOI	B		TOPENISH, DRAINED	D		TRAMPAS	C
THISTLEBURN	B		TIMBERLY	B		TOGO	B		TOPPEMAN	C		TRAMWAY	B
THISTLEDEW	B		TIMBERVILLE	B		TOGUS	D		TOPIA	C		TRANQUILAR	C
THOENY	D		TIMBLIN	D		TOGONA	D		TOPLIFF	B		TRANSYLVANIA	B
THOMAS	B/D		TIMBUCTOO	C		TOCMI	C		TOPONCE	B/D		TRAPPER	B
THOMHILL	B		TIMENTWA	B		TOINE	B		TOPPENISH	D		TRAPPS	C
THOMS	D		TIMHILL	D		TOISNOT	D		TOPPENISH, DRAINED	C		TRASK	C
THORNBURGH	B		TIMMUS	B		TOISNOT, PONDED	B		TOPSEY	C		TRAVELERS	D
THORNDALE	D		TIMKEN	D		TOIYABE	D		TOQUERVILLE	D		TRAVER	B
THORNDIKE	C/D		TIMMERMAN	B		TOKAY	B		TOQUI	D		TRAVERTINE	C
THORNOCK	D		TIMMONS	B		TOKEEN	C		TOUUP	A		TRAVESSILLA	D
THORNTON	D		TIMPANMUTE	C		TOKLAT	C		TCP	B		TRAVIS	D
THOROUGHFARE	B		TIMPANOGOS	B		TOKPER	B		TORROY	B		TRAYSON	C
THORP	C/D		TIMPANOGOS, MODERATELY WELL DRAINED	C		TOKUL	C		TORCHLIGHT	D		TRAWICK	B
THOUT	C		TIN	D		TOLEDO	D		TORDIA	L		TRAY	C
THOW	B		TIMPER	D		TOLEA	B		TOREX	C		TREADWAY	D
THOWSON	B		TIMPULA	B		TOLIX	C		TORNUNTA	E		TREATY	B/D
THRASH	B		TINA	C		TOLICHA	C		TORNEY	A		TREBLE	B
THREADGILL	B		TINAJA	B		TOLKE	B		TORNILLO	B		TREBLOC	D
THREECROP	B		TINAMOU	C		TOLL	A		TORNING	D		TREBOR	C
THREEDOT	D		TINDAHAY	B		TOLLGATE	B		TORODA	D		TREKOR	D
THRECK	C		TINDAHAY, GRAVELLY	A		TOLLHOUSE	A		TORONTO	E		TREEKOR, NONSTONY	C
THREEMILE	B		TINE	A		TOLMAN	D		TORPEDO LAKE	D		TREEN	D
THREETOP	C		TINEMAN	B		TOLNA	B		TORREON	B		TREGD	C
THROCK	C		TINEMAN, WET	C		TOLD	E		TORREON, COBBLY	D		TREHARNE	C
THULEPAH	C		TINGEY	B		TOLONIER	C		TORRES	B		TRELK	B
THUMBERLAND	B		TINKER	C		TOLSONA	C		TORRO	B		TRELONA	D
THUNDERBIRD	D		TINN	D		TOLSONA, TILL	D		TORRY	D		TREMAN	B
THURBER	D		TINNIN	A		SUBSTRATUM	A						
			TINSLEY	A		TOLSTCI	A						

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

TREMABLES	B	TRUSCREEK	B	TURSON	C	UHLAND	B	UTABA	A
TREMABLES, MODERATELY WET	C	TRUSSEL	C	TURTON	D	UHLIG	B	UTALINE	B
TREMONA	C	TRUVAR	D	TUSAYAN	C	UHLORN	C	UTE	D
TREMPE	A	TRYDN	D	TUSCAN	D	UINTA	B	UTICA	B
TREMPEALEAU	B	TSALI	C	TUSCARAWAS	C	UKIAH	D	UTLEY	B
TRENARY	B	TSCHICOMA	B	TUSCAMILLA	B	ULA	C	UTSO	B
TRENHOLM	D	TSIRKU	C	TUSCOLA	C	ULEN	B	UTUADO	B
TRENT	B	TSOSIE	B	TUSCOSSO	B	ULIDA	D	UVADA	D
TRENTON	D	TUB	C	TUSCUMBIA	D	ULLDA	B	UVALDE	B
TREON	D	TUBAC	C	TUSEL	B	ULM	C	UVI	B
TREP	B	TUBERET	C	TUSIP	B	ULMRANT	B	UWALA	B
TRES HERMANOS	B	TUCANNON	C	TUSK	B	ULRIC	C	UWHARRIE	B
TRESAND	B	TUCKAMDE	B	TUSKAHOMA	D	ULRICHER	B	UZONA	D
TRESED	C	TUCKER	C	TUSKEEGO	C/D	ULTRA	D	VABEM	D
TRESTLE	B	TUCKERMAN	D	TUSLER	B	ULUPALAKUA	B	VABUS	C
TRETEN	B	TUCSON	B	TUSQUITEE	B	ULY	B	VACHERIE	B
TREVINO	D	TUCUMCARI	B	TUSSY	D	ULYSSES	B	VADAMO	D
TREVLAC	B	TUFFIT	C	TUSTELL	C	UMA	A	VADER	B
TREY	A	TUFFO	D	TUSTIN	B	UNAPINE	D	VADNAIS	C
TRIANGLE	D	TUGHILL	D	TUSTUMENA	B	UNAPINE, DRAINED	C	VADD	B
TRIBBEY	C	TUJUNGA	A	TUTE	B	UMATILLA	B	VAEDA	D
TRICON	C	TUKEY	C	TUTHILL	B	UMBARG	C	VAIDEN	D
TRID	C	TUKUMNIK	C	TUTNI	B	UMBERLAND	D	VAILTON	B
TRID, NONSTONY	B	TUKWILA	D	TUTTL	C	UMIAT	D	VAIVA	D
TRIDELL	B	TUKWILA, DRAINED	C	TUTULLA	C	UMIKOA	B	VALBY	C
TRIGGER	D	TULA	C	TUTWILER	B	UMIL	D	VALCO	C
TRIGO	D	TULANA, DRAINED	B	TUWEEP	B	UMPA	B	VALCREEK	B
TRIMAD	B	TULANA, NONFLOODED	C	TUXEKAN	B	UMPCOOS	D	VALCREST	C
TRIMBLE	B	TULARE	D	TWEBA	D	UMPUMP	B	VALDEZ, CLAYEY	D
TRIMMER	C	TULARGO	B	TWEBA, MODERATELY	B	UNA	D	SUBSTRATUM	
TRINIDAD	D	TULAROSA	B	WET	B	UNADILLA	B	VALDEZ, SALINE	D
TRINITY	D	TULASE	B	TWEBA, DRAINED	C	UNAKA	B	VALDEZ, CLAYEY	C
TRIO	D	TULCH	B	TWEEDY	C	UNAKWIK	D	SUBSTRATUM,	
TRIOHMAS	B	TULECAN	C	TWEENER	D	UNAVEEP	B	SALINE	
TRIPIT	C	TULELAKE	D	TWICK	D	UNCAS	D	VALDEZ, DRAINED	C
TRIPLEN	C	TULIA	B	TWIG	D	UNCOMPANGRE	D	VALDOSTA	A
TRIPOLI	B/D	TULIK	B	TWILIGHT	B	UNDERWOOD	B	VALE	B
TRIPP	B	TULLAHASSEE	C	TWIN CREEK	C	UNDUSK	B	VALENCIA	B
TRISTAN	B	TULLER	D	TWINING	C	UNGERS	B	VALENT	A
TRITON	D	TULLOCK	C	TWINSI	C	UNICOI	B	VALENTINE	A
TRIX	B	TULLY	C	TWISSELMAN	C	UNION	C	VALERA	C
TROCKEN	B	TULOSO	D	TWISSELMAN,	D	UNIONTOWN	B	VALHALLA	A
TROJAN	B	TUMAC	B	SALINE-ALKALI,	B	UNIONVILLE	B	VALKARIA	B/D
TROMP	C	TUMALD	C	WET		UNISON	B	VALKARIA,	D
TROMSEN	B	TUMARION	D	TWISSELMAN,	D	UNIUS	D	DEPRESSIONAL	
TROOK	B	TUMBLETON	C	SALINE-ALKALI	C	UNIVEGA	D	VALLAN	D
TROOK, SALINE	C	TUMTUM	D	TWOMILE	C/D	UNLIC	B	VALLE	B
TROPAL	D	TUNBRIDGE	C	TWOTOP	C	UNSEL	B	VALLECITOS	D
TROPIC	B	TUNEHILL	D	TYBD	D	UNSON	B	VALLEOMO	B
TROSI	D	TUNICA	D	TYEE	D	UPDEGRAFF	B	VALLERS	C
TRDSKY	B/D	TUNIS	D	TYGART	D	UPDIKE	D	VALLEYCITY	D
TROUGHS	D	TUNITAS	C	TYGH	C	UPSATA	B	VALMAR	C
TROUP	A	TUNK	A	TYLER	D	UPSHUR	D	VALMONT	C
TROUT CREEK	C	TUNKHANNOCK	A	TYNDALL	C	UPSON	B	VALMY	B
TROUT RIVER	A	TUNNEL	B	TYNDALL, DRAINED	B	UPSON, STONY	C	VALNOR	C
TRDUTDALE	C	TUNNISON	D	TYNER	A	UPSPRING	D	VALDIS	B
TRDUTER	C	TUOMI	B	TYONEK	D	UPSTEER	B	VALPAC	C
TRDUTVILLE	B	TUPELO	D	TYRE	A/D	UPTMOR	C	VALSETZ	C
TROVE	B	TUPOKNUK	D	TYRONE	C	UPTON	C	VALTO	D
TROXEL	B	TUQUE	B	TYSON	B	UPVILLE	B	VALTON	B
TRUAX	B	TURBEVILLE	C	TYZAK	D	URACCA	B	VALVERDE	B
TRUBLE	C	TURBOTVILLE	C	UANA	D	URBANA	D	VAMER	D
TRUCE	C	TURBYFILL	B	UBANK	B	URBO	D	VAMONT	D
TRUCHOT	C	TURK	C	UBAR	D	UREAL	D	VAMP	C
TRUCKEE	C	TURKEYSPRINGS	B	UBEMFBE	C	URICH	C/D	VAN DUSEN	B
TRUCKEE, DRAINED	B	TURLEY	B	UBIK	B	URIPNES	D	VAN HORN	B
TRUCKTON	B	TURLIN	B	UBLY	B	URIPNES, GRAVELLY	C	VAN MOSTERN	C
TRUDAU	B	TURLOCK	D	UCHEE	A	URLAND	C	VAN WAGONER	D
TRUDE	A	TURMOUND	D	UCOLO	D	URNE	B	VANAJO	D
TRUEFFISSURE	B	TURNBAC	C	UCOPIA	B	URNES	B/D	VANANDA	D
TRUESDALE	C	TURNBULL	D	UDAMO	B	URSA	C	VANBRUNT	C
TRUMDY	D	TURNER	B	UDEL	D	URSINE	D	VANCE	C
TRULAE	D	TURNERCREST	C	UDELOPE	D	URTAH	C	VANDA	D
TRULON	C	TURNERVILLE	B	UDOLPHO	B/D	URWIL	C	VANDALIA	D
TRUMAN	B	TURNEY	B	UFFENS	B	USAL	C	VANDAMME	B
TRUMBULL	D	TURRAH	C	UFFENS, FLOODED	C	USAL, GRAVELLY	B	VANDAMORE	B
TRUMP	D	TURRET	B	UGAK	D	USHAR	B	VANDERGRIFT	C
TRUNK	D	TURRIA	B	UHALDI	B	USINE	A	VANDERHOFF	C
		TURRIA, WET	C	UHL	B	USK	C	VANDERLIP	A

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

VANEPPS	C	VERDE	C	VILLY, DRAINED	B	WABASSO	B/D	WALES, OVERBLOWN	C
VANET	D	VERDEL	D	VILT	C	WABASSO,	D	WALFORD	B/D
VANG	B	VERDICO	D	VIKVILLE	D	DEPRESSIONAL	D	WALHALLA	B
VANGUARD	C	VERDIGRIS	B	VINA	B	WABBASEKA	D	WALKE	C
VANMETER	C	VERDUN	D	VINCENNES	C/D	WABEK	A	WALKNOLLS	D
VANNI	B	VERENDRYE	B/D	VINCENT	C	WABEN	B	WALKON	C
VANNOY	C	VERGAS	C	VINCOM	C	WABUSKA	C	WALL	B
VANDOCKER	B	VERGENNES	C	VINDICATOR	D	WACA	D	WALLA WALLA	B
VANOSS	B	VERHALEN	D	VINEGARROON	C	WACAHOOTA	D	WALLACE	B
VANPETTEN	B	VERICK	C	VINEYARD	C	WACOTA	B	WALLEN	B
VANSICKLE	D	VERITAS	B	VINGO	B	WACDUSTA	B/D	WALLER	B/D
VANSON	B	VERJELES	D	VINING	C	WADAMS	B	WALLINGTON	C
VANSTEL	B	VERLAND	D	VININI	D	WADDOUPS	B	WALLKILL	C/D
VANTAGE	B	VERLOT	D	VINITA	D	WADELL	B	WALLKILL,	B/D
VANVOR	B	VERMEJO	D	VINJE	B	WADENA	B	NONFLOODED	
VANWYPER	C	VERMILLION	C	VINLAND	D	WADENILL	B	WALLOWA	C
VANZANDT	C	VERMISA	D	VINSAD	C	WADER	C	WALLROCK	C
VAQUERO	D	VERNADO	B	VINSON	E	WADSPRINGS	C	WALLSBURG	D
VARCO	D	VERNAL	B	VINT	B	WADLEIGH	D	WALLSON	B
VARDEN	B	VERNALIS	B	VINT, WET	C	WADMALAW	D	WALLUSKI	C
VARELUM	B	VERNDALE	B	VINTAS	A	WADSWORTH	C	WALNETT	C
VARELUM, CLAY LOAM	C	VERNTA	A	VINTON	E	WAGES	B	WALONG	B
SUBSTRATUM		VERNON	D	VITOLA	D	WAGNER	D	WALPOLE	C
VARGAS	C	VERNONIA	B	VIPONT	C	WAGONBOX	D	WALREES	C
VARICK	D	VERO	B/D	VIRATON	C	WAGONTIRE	D	WALSH	B
VARINA	C	VERO, DEPRESSIONAL	D	VIRDEN	B/D	WAGRAM	A	WALSTEAD	B
VARNA	C	VERSHIRE	C	VIRGELLE	C	WAHA	C	WALTERS	B
VARNEY	B	VERSON	C	VIRGIL	B	WAMATOYA	C	WALTERSHOW	B
VARRD	B	VERTEL	D	VIRGIN PEAK	D	WAMEE	D	WALTI	D
VARYSBURG	B	VERTREES	B	VIRGIN RIVER	C	WANGUYME	D	WALUM	B
VASA	B	VES	B	VIRKULA	C	WAHAWA	B	WALVAN	B
VASHTI	C	VESEY	B	VIRTUE	C	WAHIKULI	C	WALVILLE	B
VASQUEZ	C	VESPER	D	VISTA	B	WAMKEENA	B	WAMBA	D
VASSALSORD	D	VESSER	C	VITALE	C	WAHLUKE	B	WAMBA, DRAINED	C
VASSAR	B	VESSILLA	D	VITZTHUM	D	WAHOO	D	WANDUSKA	A
VASSETT	B	VESTA	B	VIUDA	D	WAHPETON	C	WANEHO	C
VASTINE	C	VFSTABURG	A/C	VIVUM	D	WAHREKAM	D	WAPIC	B
VASTINE,	D	VESTON	D	VIVES	B	WAHSTAL	C	WAPPOD	D
SALINE-ALKALI		VETA	B	VIVI	B	WAHTIGUP	B	WAPPSVILLE	B
VAUCLOSE	C	VETAL	B	VIXEN	B	WANTUM	D	WANAGAN	B
VAUGHAN	D	VETEADD	C	VIZCAINO	D	WANWEAP	D	WANBLEE	D
VAUGHNSVILLE	C	VEYD	D	VIZCAPDINT	D	WAIANA	D	WANDA	B
VAY	B	VIA	B	VLASATY	C	WAIAKOA	C	WANDD	A
VAYAS	D	VIAN	B	VLECK	D	WAIALEALE	D	WANETTA	B
VEAL	B	VIBLE	A	VLY	C	WAIALUA	B	WANILLA	C
VEATCH	B	VIBO	B	VOATS	B	WAIAWA	D	WANN	B
VEATCH, STONY	C	VIBORAS	D	VOCA	C	WAIHUNA	C	WANNACOTT	B
VEAZIE	R	VIBORG	F	VODEPMAIER	B	WAIKALOA	B	WANDGA	B
VEBAR	B	VICEE	B	VOIGHT	B	WAIKANE	B	WANOPIE	C
VECONT	D	VICK	C	VOLACDORA	B	WAIKAPU	B	WANSER	D
VEEDUM	D	VICKERY	C	VOLASH	B	WAIKOMO	D	WANSER, DRAINED	B
VEET	B	VICKING	B	VOLBORG	D	WAILUKU	D	WAPAL	A
VEGA	C	VICKING, DRY	D	VOLCC	D	WAIWEA	B	WAPAL, BEDROCK	B
VEGA ALTA	B	VICKSBURG	B	VOLENTE	C	WAINEE	B	SUBSTRATUM	
VEGA BAJA	C	VICKTON	B	VOLINTA	B	WAINOLA	B	WAPAL, BEDROCK	B
VEKDL	D	VICTINE	D	VOLKMAR	B	WAIPAHU	C	SUBSTRATUM	
VEKOL, COOL	C	VICTOR	B	VOLNEY	B	WAIKA	B	WAPATO	D
VELASCO	D	VICTORIA	D	VOLPERIE	C	WAITS	B	WAPELLO	B
VELDA	B	VICTORVILLE	B	VOLTA	D	WAKE	D	WAPI	D
VELDKAMP	B	VICTORY	E	VOLTAGE	B	WAKEEN	B	WAPINITIA	B
VELMA	B	VICU	C	VOLTAIRE	D	WAKEFIELD	B	WAPPING	B
VELDW	B	VIDA	C	VOLTAIRE, DRAINED	C	WAKELAND	C	WAPPINGER	B
VELVA	B	VIDAURI	D	VOLTAIRE, GRAVELLY	C	WAKEPISH	B	WAPPO	D
VENA	C	VIDRINE	D	SUBSTRATUM	D	WAKITA	D	WAPSHILLA	B
VENABLE	D	VIEJA	D	VOLUSIA	C	WAKONDA	B	WAPSIE	B
VENADITO	D	VIENNA	B	VONA	B	WAKONDA, TILL	C	WAPTUS	C
VENANGO	C	VIEQUES	E	VONALEE	E	SUBSTRATUM		WARBA	B
VENAPASS	D	VIGAR	C	VONASON	B	WAKULLA	A	WARDROD	A
VENATOR	C	VIGIA	D	VOORHIES	C	WALCAN	C	WARDELL	C
VENETA	D	VIGNOLD	C	VORE	B	WALCOTT	B	WARDEN	B
VENEZIA	D	VIGO	D	VOSSBURG	B	WALDBILLIG	B	WARDENOT	A
VENICE	C	VIGUS	B	VOSS	B	WALDECK	C	WARDWELL	C
VENLO	D	VIKING	D	VOSSET	B	WALDEN	D	WARE	B
VENTRIS	D	VIL	D	VULCAN	C	WALDO	D	WAREAGLE	B
VENTUPE	D	VILAS	A	VYLACH	D	WALDORF	C/D	WAREHAM	C
VENUM	B	VILLA	B	WAAS	E	WALDPORT	A	WARW SPRINGS	D
VENUS	B	VILLA GROVE	B	WABANICA	C	WALDRON	D	WARW SPRINGS,	C
VERBOORT	D	VILLEGREEN	C	WAPASH	D	WALDRUP	D	DRAINED, CLAY	
VERCLIFF	C	VILLY	D	WABASHA	D	WALES	B	SUBSTRATUM	

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION.  
MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

WARM SPRINGS, DRAINED, ALKALI	C	WAUPECAN	B	WELD	C	WETTERMORN	C	WIBAUX	B
WARM SPRINGS, DRAINED	C	WAUQUIE	B	WELDA	C	WETZEL	D	WICHITA	C
WARM SPRINGS, COOL	C	WAURIKA	D	WELLER	C	WEVERTON	B	WICHUP	D
WARMAN	B/D	WAUSEON	B/D	WELLINGTON	D	WEWELA	B	WICKAHONEY	D
WARMAN, GRAVELLY	A/D	WAUTOMA	B/D	WELLMAN	B	WEWOKA	C	WICKENBURG	D
SUBSOIL		WAVELAND	B/D	WELLS	B	WEYERS	C/D	WICKERSHAM	B
WARNEKE	D	WAVELAND, DEPRESSIONAL		WELLSBORO	C	WEYMOUTH	B	WICKETT	C
WARNEKES	C/D	WAVERLY	B/D	WELLSBRO	C	WHAKANA	B	WICKHAM	B
WARNOCK	B	WAWASEE	B	WELLSED	B	WHALAN	B	WICKIUP	C
WARRENTON	D	WAWINA	A	WELLSTON	B	WHALEY	D	WICKSBURG	B
WARSAW	B	WAX	C	WELLSVILLE	B	WHARTON	C	WICUP	C
WARSHING	B	WAXPOOL	D	WELLTON	B	WHATCOM	C	WIDENAM	A
WARWICK	A	WAY	D	WELDY	C	WHATELY	D	WIDEN	C
WASA	D	WAYAY	B	WELRING	D	WHEATLEY	A/D	WIDTDOE	B
WASATCH	A	WAYBE	D	WELSUM	D	WHEATRIDGE	B	WIEHL	C
WASCO	B	WAYCUP	B	WELTER	D	WHEATVILLE	B	WIJLAND	C
WASDA	B/D	WAYDEN	D	WEMPLE	D	WHEELER	B	WIERGATE	D
WASEPI	B	WAYLAND	C/D	WENAS	D	WHEELERVILLE	B	WIFFO	B
WASHBURN	D	WAYMOR	B	WENAS, DRAINED	C	WHEELING	B	WIGGLER	D
WASHINGTON	B	WAYNECD	D	WENATCHEE	C	WHEELON	D	WIGGLETON	B
WASHINGTON, WET	C	WAYNESBORO	B	WENDANE	C	WHETROCK	C	WIGTON	A
SUBSTRATUM		WAYNETOWN	C	WENDANE, DRAINED	B	WHETSTONE	C	WILAH	B
WASHOE	B	WEA	B	WENDOVER	D	WHICHMAN	B	WILBANKS	D
WASHOUGAL	B	WEASH	C	WENTDE	D	WHIDBEY	C	WILBRAMHAM	C
WASHTEGAL	C/D	WEATHERFORD	B	WENDNA	C	WHILPHANG	D	WILBUR	B
WASILLA	D	WEAVER	C	WENTWORTH	B	WHIPPANY	C	WILBURTON	B
WASIOJA	B	WEAVERVILLE	B	WEDGUFKA	B	WHIPPLE	D	WILCO	C
WASKISH	D	WEBB	C	WEPO	C	WHIPSTOCK	C	WILCOX	D
WASKOV	C	WEBBRIDGE	B	WERELD	B	WHIRLO	B	WILCOXSON	C
WASPO	D	WEBBTOWN	C	WERLOG	C	WHISKEYDICK	C	WILDALE	C
WASSAIC	B	WEBER	B	WERNER	D	WHISPERING	C	WILDCAT	D
WASSIT	D	WEBILE	C	WERNOCK	B	WHISTLE	B	WILDERNESS	C
WATAB	C	WEBSTER	B/D	WESCONNETT	D	WHIT	B	WILDGEN	A
WATAHA	C	WEDEKIND	D	WESDY	C	WHITAKER	C	WILDHORSE	B
WATAUGA	B	WEDERTZ	B	WESFIL	D	WHITE MOUSE	D	WILDORS	C
WATCHABOB	C	WEDGE	A	WESIX	D	WHITE STORE	C	WILDWOOD	D
WATCHAUG	B	WEDLAR	C	WESKA	D	WHITE SWAN	D	WILE	C
WATCHUNG	D	WEDDOWEE	B	WESLEY	B	WHITECAP	B	WILEY	D
WATERBURY	D	WEED	B	WESD	B	WHITECLOUD	D	WILHITE	C/D
WATERCANYON	B	WEEDING	D	WESPAC	D	WHITECOW	B	WILHOIT	B
WATEREE	B	WEEDMARK	B	WESPAC, SANDY	C	WHITECROSS	D	WILKES	C
WATERMAN	D	WEEKIWAHCHEE	D	SUBSTRATUM		WHITEFISH	B	WILKESON	B
WATERTOWN	A	WEEKS	C	WESSEL	C	WHITEFORD	B	WILKINS	D
WATERVILLE	B	WEEKSVILLE	B/D	WESTBROOK	D	WHITEHALL	B	WILL	B/D
WATKINS	B	WEENA	D	WESTBURY	C	WHITEHILLS	C	WILLABY	C
WATKINS RIDGE	B	WEPAH	C	WESTBUTTE	C	WHITEMORN	D	WILLACY	B
WATO	B	WEESATCHE	B	WESTCAMP	C	WHITEHORSE	B	WILLAKENZIE	C
WATONGA	D	WEGA	D	WESTCREEK	B	WHITEKNOB	B	WILLAMAR	B
WATOPAH	B	WEHADKEE	B	WESTE	C	WHITELAKE	B	WILLAMETTE	B
WATROUS	B	WEIGANG	C	WESTERVILLE	B	WHITEMAN	D	WILLAMETTE, WET	C
WATSEKA	B	WEIGLE	C	WESTFORK	D	WHITEPEAK	D	WILLANCH	D
WATSON	C	WEIKERT	C/D	WESTHAVEN	B	WHITERIVER	C	WILLAPA	C
WATSONIA	D	WEIR	D	WESTHAVEN,	C	WHITEROCK	D	WILLARD	B
WATSONVILLE	D	WEIRMAN	C	SALINE-ALKALI		WHITESBORO	C	WILLETTE	A/D
WATT	D	WEIRMAN, WET	D	WEST INDIAN	C	WHITESBURG	C	WILLHILL	C
WATTON	C	WEIRMAN,	A	WESTLAKE	D	WHITESON	D	WILLHO	D
WATUSI	B	NONFLOODED		WESTLAND	B/D	WHITESTONE	B	WILLIAMS	B
WAUBAY	B	WEISBURG	C	WESTMORE	C	WHITETHORN	C	WILLIAMSBURG	B
WAUBEEK	B	WEISER	B	WESTMORELAND	B	WHITETWATER	D	WILLIAMSON	C
WAUBERG	D	WEISHAUP	D	WESTON	D	WHITEWOLF	A	WILLIAMSPORT	C
WAUBONSIE	B	WEISSENFELS	B/D	WESTOVER	B	WHITEWOOD	C/D	WILLIAMSTOWN	C
WAUCEDAH	D	WEITAS	C	WESTPHALIA	B	WHITEWOOD,	B/D	WILLIAMSVILLE	C
WAUCHULA	B/D	WEITCHPEC	C	WESTPLAIN	D	NONFLOODED		WILLIMAN	B/D
WAUCHULA, DEPRESSIONAL		WEKODA	D	WESTPORT	A	WHITEWRIGHT	C	WILLIS	C
WAUCOBA	D	WELAKA	A	WESTPORT, THIN	B	WHITING	C	WILLISTON	C
WAUCOMA	B	WELBY	B	SURFACE	B	WHITINGER	B	WILLOW CREEK	B
WAUCONDA	B	WELCH	D	WESTSHORE	D	WHITLEY	D	WILLOWDALE	B
WAUKEE	B	WELCH, GRAVELLY	B	WESTVACO	C	WHITLOCK	B	WILLOVEMOC	C
WAUKEGAN	B	SUBSTRATUM,		WESTVIEW	B	WHITMAN	D	WILLOWMAN	B
WAUKENA	D	DRAINED		WESTVILLE	B	WHITNEY	C	WILLOVS	D
WAUKON	B	WELCH, RARELY	B	WESTVEGO	D	WHITORE	B	WILLWOOD	A
WAULD	C	FLOODED, DRAINED		WESWOOD	C	WHITSOL	C	WILMA	B
WAUMAC	B	WELCH, DRAINED	C	WETA	D	WHITSON	D	WILMER	C
WAUMBOK	B	WELCHLAND	B	WETHERSFIELD	B	WHITWELL	C	WILMONT	B
WAUNA	C	WELCOME	B	WETHEY	C	WHDBREY	C	WILMONTON	B
WAUPACA	B/D			WETHEY, DRAINED	A	WHOLAN	B	WILPAR	C
				WETMORE	D	WHORLED	C	WILPOINT	C
				WETSAW	C	WHY	B	WILSHIRE	A

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

WILSON	D	WISHARD	C	WCODS CROSS	D	WYNOOSE	D	VEGEN	B
WILSONGULCH	B	WISHBONE	B	WOODSEYE	D	WYOCENA	B	VEGUAS	C
WILSONVILLE	D	WISHEYLU	C	WOODSFIELD	C	WYOMING	A	VELJACK	B
WILSOR	B	WISHKAM	D	WOODSIDE	B	WYRENE	B	YELLOWBAY	B
WILST	C	WISHKAM, DRAINED	C	WOODSLAKE	D	WYSOCKING	C/D	YELLOWHOUND	B
WILTON	B	WISKAN	C	WOODSON	D	XANA	B	YELLOWROCK	A
WINADA	C	WISKIFLAT	B	WOODSTOCK	C/D	XANADU	B	YELLOWSTONE	D
WINBERRY	C	WISNER	B/D	WOODSTOWN	C	XAVIER	B	YELM	C
WINCHESTER	A	WISTER	C	WOODTELL	D	XENIA	B	YEMASSEE	C
WINCHUCK	C	WITBECK	B/D	WOODVILLE	D	XEND	B	YENCE	C
WIND RIVER	B	WITFELS	B	WOODWARD	B	XERTA	C	YENLO	B
WINDCOAT	D	WITHAM	D	WOODWEST	D	XERXES	D	YENRAB	A
WINDER	B/D	WITHEE	C	WOOFUS	D	XICA	C	YEDMAN	B
WINDER, DEPRESSIONAL	D	WITHERBEE	A/D	WOOLPER	C	XINE	C	YEOPIH	C
WINDHAM	B	WITHERELL	D	WOOLSEY	B	XIPE	D	YERINGTON	A
WINDICREEK	A	WITHERS	C	WOOLSTALF	B	XIPE, MODERATELY	B	YERMO	B
WINDMILL	B	WITT	D	WOOLSTED	B	XFT	B	YESUM	B
WINDSOR	A	WITTENBERG	B	WOONSOCKET	B	XMAN	D	YETEM	B
WINDTHORST	C	WITZEL	D	WOOSLEY	C	YACOLT	B	YETULL	A
WINDWHISTLE	C	WIX	C	WOOSTER	C	YAGO	C	YIGO	B
WINDWHISTLE, WARM	B	WIXOM	B	WORCESTER	C	YAHANA	C	YIPDR	B
WINDY	B	WOCKLEY	C	WORDEN	C	YAHARA	C	YLIIG	C
WINDYPOINT	B	WODA	D	WORF	D	YAHNE	C	YDBE	C
WINEG	B	WODEN	D	WORFKA	D	YAHOLA	D	YDCHUM	C
WINEMA	C	WODSKOW	B	WORFMAN	D	YAHOD	B	YDCKEY	C
WINETTI	B	WODSKOW, DRAINED	C	WORFSTONE	C	YAINAX	B	YODER	B
WINEVADA	C	WOHLY	B	WORK	C	YAKI	D	YODY	C
WINFALL	B	WOLCO	B	WORK, GRAVELLY	B	YAKIMA	B	YOHURT	D
WINFIELD	B	WOLCOTT	C	WORLAND	C	YAKUS	D	YOKAYO	D
WING	D	WOLDALE	B/D	WORLEY	D	YAKUTAT	A	YOKOHL	D
WINGATE	B	WOLDALE, DRAINED	D	WORMSER	C	YALELAKE	B	YOKUT	B
WINGER	B/D	WOLF	C	WORSOCK	B	YALESVILLE	C	YOLLABOLLY	C
WINGINAW	D	WOLF POINT	B	WORSHAM	D	YALLANI	B	YOLO	B
WINGVILLE	D	WOLFCREEK	C	WORTH	C	YALMER	B	YOLOGO	D
WINIFRED	C	WOLFESON	B	WORTHEN	B	YAMAC	B	YOMBA	B
WINK	B	WOLFESON, WET	C	WORTHING	D	YAMHILL	C	YOMONT	P
WINKEL	D	WOLFEY	D	WORTMAN	D	YAMO	B	YONGES	B
WINKLEMAN	C	WOLFPEN	C	WORTMAN, SANDY	A	YANSAY	D	YONNA	D
WINKLEMAN, WET	D	WOLFFEVER	A	WOVKA	D	YANA	B	YORBA	D
WINKLER	B	WOLLARD	C	WRANGELL	D	YANCY	D	YORK	C
WINLER	D	WOLLENT	C	WRANGO	A	YANKEE	D	YORKTOWN	D
WINLO	D	WOLOT	D	WRAYHA	D	YANKTON	B	YORKTREE	C
WINN	C	WOLVERINE	B	WREDAH	B	YANUSH	B	YORKVILLE	D
WINNEBAGO	B	WOMACK	A	WRENCOE	D	YAP	B	YOST	D
WINNECONNE	C	WOOD	C	WRENNAN	C	YAPOAH	B	YOST, DRAINED	C
WINNECOOK	C	WOOD, OVERWASH	B	WRENTHAM	C	YAQUI	D	YDUD	B
WINNFUCCA	B	WOOD, WET	C	WRIGHT	C	YAQUINA	B	YUGA	B
WINNESHIK	B	WOOD RIVER	C	WRIGHTMAN	C	YAQUINA, DRAINED	C	YUGA, SANDY	D
WINNETT	D	WOOD BECK	D	WRIGHTSBORO	C	YARCO	D	SUBSTRATUM	D
WINNSBORO	D	WOODBINE	B	WRIGHTSVILLE	D	YARDLEY	C	YOUJAY	D
WINON	D	WOODBRIDGE	B	WRIGHTWOOD	E	YARTS	B	YUJMAN	C
WINONA	D	WOODBURN	C	WUKKI	B	YATAMONEY	C	YUJNGSTON	B
WINDOSKI	B	WOODBURY	D	WUKSI	A	YATAMONEY, STONY	D	YUJNGSTON, WET	C
WINOPEE	B	WOODCOCK	D	WULFERT	D	YATES	D	YURAME	B
WINRIDGE	D	WOODCOCK	B	WUNJEY	B	YAUCO	C	YOUTLKUE	D
WINSHIP	C	WOODFORD	D	WUPATKI	D	YAUMANNAM	B	YDVIMPA	D
WINSPECT	B	WOODGULCH	A	WURNO	C	YAUPON	D	YPSI	C
WINSTON	B	WOODHALL	C	WURSTEN	B	YAWDIM	B	YRIBARREN	D
WINT	D	WOODHURST	C	WURTSBORO	C	YAWHEE	D	YSIDORA	C
WINTERFIELD	A/D	WOODIN	C	WYALUSING	D	YAWKEY	B	YTURBIDE	A
WINTERHAVEN	B	WOODINGTON	B/D	WYANDOTTE	D	YAXON	B	YTURRIA	A
WINTERIDGE	B	WOODINVILLE	D	WYANT	C	YEAGER	A	YUBA	D
WINTERS	C	WOODINVILLE, DRAINED	C	WYARD	E	YFARY	C	YUKO	D
WINTERSBURG	C	WOODLAWN	B	WYARNO	B	YEATES HOLLOW	B	YUKON	D
WINTERSET	C	WOODLEAF	C	WYATT	C	YEATES HOLLOW,	C	YULEE	D
WINTHROP	A	WOODLY	B	WYCDLO	C	LOAMY SUBSTRATUM,	C	YUNES	D
WINTLEY	B	WOODLYN	D	WYE	B	STONY	B	YUNQUE	C
WINTON	C	WOODMANSIE	B	WYEAST	D	YEATES HOLLOW,	C	YURH	D
WINTONER	B	WOODMERE	B	WYETH	B	LOAMY SUBSTRATUM	B	YUTRUE	D
WINU	C	WOODMONT	C	WYEVILLE	C	YEATES HOLLOW,	C	YUVAS	D
WINZ	D	WOODPASS	C	WYICK	D	STONY	D	ZAAZ	D
WIDTA	B	WOODROCK	B	WYKEMAN	B	YEATES HOLLOW,	C	ZABA	B
WIPPLE	C	WOODROW	C	WYKOFF	B	NONSTONY	B	ZACA	D
WIRT	B	WOODROW,	B	WYMAN	E	YEATES HOLLOW, DRY	C	ZACHARIAS	B
WISCOW	D	SALINE-ALKALI	C	WYMCRE	D	YEATES HOLLOW,	C	ZACHARY	C
WISE	C	WOODROW,	C	WYNDERE	B	COBBLY	B	ZACK	D
WISEMAN	A	OCCASIONALLY	C	WYNN	B	YEATON	C	ZADDG	A/D
WISFLAT	D	FLOODED	C	WYNNVILLE	C	YECROSS	A	ZADVAR	D
				WYNDNA	C	YEDLICK	B	ZAFRA	B

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

## Exhibit A-1, continued: Hydrologic soil groups for United States soils

ZAGG	C	ZOMNER	D
ZAHILL	C	ZOLA	C
ZAHL	B	ZOLFO	C
ZAIDY	C	ZOLTAY	C
ZAKME	D	ZOOK	C/D
ZALCO	A	ZOOK, SILTY	C
ZALDA	D	SUBSTRATUM	
ZALLA	A	ZORRA	D
ZAMORA	B	ZORRAVISTA	A
ZAMSCAN	B	ZOYER	D
ZANBUR	B	ZUPER	C
ZANE	B	ZUFELT	C
ZANEIS	B	ZUKAN	D
ZANESVILLE	C	ZULCH	D
ZANGO	D	ZUMAN	D
ZAPA	C	ZUMAN, PROTECTED	C/D
ZAPATA	C	ZUMBRO	A
ZARK	C	ZUMWALT	C
ZATOVILLE	C	ZUNDELL	C
ZAU	C	ZUNHALL	C
ZAVALA	B	ZUNI	D
ZAVCO	C	ZURICH	B
ZAYANTE	A	ZWICKER	C
ZAZA	D	ZWIEFEL	C
ZEALE	B	ZWINGLE	D
ZEB	B	ZYGORE	B
ZEBA	B	ZYME	D
ZECANYON	C	ZYMER	B
ZEEBAR	B	ZYNBAR	B
ZEEKA	C	ZYNBAR, TILL	C
ZEELNOT	B	SUBSTRATUM	
ZEESIX	C	ZYPLAQ	D
ZEGRO	C	ZYZYL	B
ZEIBRIGHT	B	ZYZZI	D
ZELL	B	ZYZZUG	D
ZEN	C		
ZENDA	C		
ZENI	C		
ZENIFF	B		
ZENITH	B		
ZENKER	B		
ZENDD	B		
ZENDR	B		
ZENDRIA	C		
ZEDMONT	A		
ZEONA	A		
ZEORELY	B		
ZEPHAN	C		
ZEPHYR	D		
ZEPP	B		
ZER	B		
ZERK	B		
ZERKER	B		
ZEVADEZ	C		
ZIA	B		
ZIBATE	D		
ZIEGENFUSS	D		
ZIEGLER	C		
ZIGWEID	B		
ZILBOY	D		
ZILLAH	D		
ZILLAH, DRAINED	C		
ZILLION	B		
ZILLMAN	B		
ZIMMERMAN	A		
ZINEB	B		
ZING	C		
ZINZER	B		
ZINZER, SALINE	C		
ZION	C		
ZIPP	D		
ZIPPEL	B/D		
ZIRAM	D		
ZITA	B		
ZITTAU	C		
ZOAR	C		
ZOATE	D		
ZOE	D		
ZOESTA	D		

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.





**Hydrology Training Series  
Module 104  
Runoff Curve Number Computations**

**CERTIFICATION OF COMPLETION**

This is to certify that

\_\_\_\_\_

completed Hydrology Training Series  
Module 104 – Runoff Curve Number Computations,

on \_\_\_\_\_ and should be credited with 2 hours of training.  
Date

Signed \_\_\_\_\_  
Supervisor/Trainer

\_\_\_\_\_  
Participant

*Completion of Hydrology Training Series Module 104–Runoff Curve Number Computations, is acknowledged and documented in the above-named employee's record.*

Signed \_\_\_\_\_  
Training Officer

\_\_\_\_\_  
Date

