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SCS Engineering Field Handbook, Chapter 2

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1. Introduction

Surface runoff is the volume of excess water that runs off a drainage area. Peak discharge is the peak rate of runoff from a drainage area for a given rainfall.

This chapter presents procedures for estimating runoff and peak discharge from small rural watersheds for use in designing soil and water conservation measures. These procedures for determining peak discharge are applicable to drainage areas that range in size from 1 to 2,000 acres in the United States, Puerto Rico, and the Virgin Islands. There is an MS-DOS microcomputer program that duplicates the manual computation procedures of the chapter.

Tables, figures, exhibits, and worksheets are included for a quick and reliable way to estimate peak discharge and runoff for a range of rainfall amounts, soil types, land use, and cover conditions. The data for the peak discharge exhibits were computed using procedures from the Soil Conservation Service (SCS) National Engineering Handbook Section 4 (NEH-4). NEH-4 or Technical Release 55 (TR-55), "Urban Hydrology for Small Watersheds," should be used to estimate peak discharge for conditions beyond the limits of this chapter and for special situations and areas where procedures of this chapter may be considered oo general to provide good estimates.

General

Rainfall is the primary source of water that runs off the surface of small rural watersheds. The main factors affecting the volume of rainfall that runs off are the kind of soil and the type of vegetation in the watershed. Factors that affect the rate at which water runs off are the watershed topography and shape along with conservation practices on a watershed.

Rainfall

The peak discharge from a small rural watershed is usually caused by intense rainfall. The intensity of rainfall affects the peak discharge more than it does the volume of runoff. The melting of accumulated snow in the mountains and northern plains may result in a greater volume of runoff, but usually at a lesser rate than runoff caused by rainfall. The melting of a winter's snow accumulation over a large area may cause major flooding along rivers. Intense rainfall that produces high peak discharges in small watersheds usually does not extend over a large area. Therefore, the same intense rainfall that causes flooding in a small tributary is not likely to cause major flooding in a main stream that drains 10 to 20 square miles. This chapter considers only rainfall-generated runoff and not runoff generated from snowmelt.

However, to avoid the use of a different set of rainfall intensities for each drainage area, a set of synthetic rainfall distributions having "nested" rainfall intensities was developed. This set maximizes the rainfall intensities by including selected short-duration intensities with those needed for longer duration.

For the size of the watershed for which SCS typically provides assistance, a storm duration of 24 hours was chosen for the synthetic distributions. The 24-hour storm, while longer than that needed to determine peak discharges, is suitable for determining runoff volumes. Thus, a single storm duration and associated synthetic rainfall distribution can be used to estimate peak discharges for a wide range of watershed areas.

The intensity of rainfall varies considerably during the storm period. Four 24-hour storm distributions, Type I, Type IA, Type II, and Type III, were developed by SCS from U.S. National Weather Service data as typical design storms. They are associated with climatic regions. Type IA maximum intensities are less than Type I; Type I intensities are less than Type III; and Type III intensities are less than Type II intensities.

Type IA and I storm distributions are typical of maritime climates in the western United States where winters are wet and summers are dry. The Type IA storm distribution is characteristic of the coastal side of the Cascade and Sierra Nevada Mountains in Oregon, Washington, and northern California. The Type I is the characteristic storm distribution for the coastal side of the Sierra Nevada Mountains in southern California and for Hawaii and Alaska. Type III represents Gulf of Mexico and Atlantic coastal areas where tropical storms bring large 24-hour rainfalls. The Type II storm distribution is typical of the more intense storms that occur over the remainder of the United States, Puerto Rico, and the Virgin Islands. Figure 2-1 is a map showing the approximate geographic boundaries for the four rainfall distributions. If a watershed is near a boundary, contact the State Conservation Engineer for a better definition of actual location.

In the intermountain and northern tier of States, the annual peak discharge may occur in some years from rainfall falling on snow or from rapid snowmelt on frozen or saturated soils. In this case, special procedures in NEH-4 are to be used.

Hydrologic soil groups

Soils have been classified into four hydrologic soil groups as shown in table 2-1. 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 sands and gravels that are deep, well drained to excessively drained, 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 soils that are moderately deep to deep, moderately well drained to well drained, and have moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (0.15 to 0.30 in/hr).

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

Cover type
Cover type affects runoff in several ways. The foliage and its litter maintain the soil's infiltration potential by preventing the impact of the raindrops from sealing the soil surface. Some of the raindrops are retained on the surface of the foliage, increasing their chance of being evaporated back into the atmosphere. Some of the intercepted moisture takes so long to drain from the plant down to the soil that it is withheld from the initial period of runoff. Ground cover also allows soil moisture from previous rains to transpire, leaving a greater void in the soil to be filled. Vegetation, including its ground litter, forms numerous barriers along the path of the water flowing over the surface of the land. This increased surface roughness causes water to flow more slowly, lengthening the time of concentration and reducing the peak discharge.

Treatment
Treatment or conservation practices reduce erosion and thereby maintain an open structure at the soil surface. This reduces the runoff, but the effect diminishes rapidly with increases in storm magnitude.

Contouring and terracing reduce erosion and decrease the amount of runoff by forming small reservoirs. Closed-end level terraces act as storage reservoirs without spillways. Land areas in which level terraces have been constructed may be excluded from the drainage area above downstream measures if the terrace system has enough capacity to store the depth of runoff commensurate with the frequency of the runoff event. Gradient terraces increase the distance water must travel and thereby increase the time of concentration.

Hydrologic conditions
In most cases, the hydrologic condition of the site affects the volume of runoff more than any other single factor. The hydrologic condition considers the effects of cover type and treatment on infiltration and runoff and is generally estimated from density of plant cover and residue on the ground surface. Good hydrologic condition indicates that the site usually has a lower runoff potential. Crop residue tilled into the soil and the residual root system from grasses that have been in crop rotations produce a good hydrologic condition.

A grassland cover is good if the vegetation covers 75 percent or more of the ground surface and is lightly grazed. A cover is poor if vegetation covers less than 50 percent of the ground surface or is heavily grazed. Grass cover is evaluated on the basal area of the plant, whereas trees and shrubs are evaluated on the basis of canopy cover.

For arid and semiarid rangelands, poor conditions exist if ground cover (grass, litter, and brush canopy) is less than 30 percent. Fair conditions exist when the ground cover is between 30 and 70 percent, and good conditions exist when ground cover is greater than 70 percent.

Topography
The slopes in a watershed have a major effect on the peak discharge at downstream points. Slopes have little effect on how much of the rainfall will run off. As watershed slope increases, velocity increases, time of concentration decreases, and peak discharge increases. An average small watershed is fan shaped. As the watershed becomes elongated or more rectangular, the flow length increases and the peak discharge decreases.

Potholes may trap a small amount of rain, thus reducing the amount of expected runoff. If potholes and marshland areas make up one-third or less of the total watershed and do not intercept the drainage from the remaining two-thirds, they will not contribute much to the peak discharge. These areas may be excluded from the drainage area for estimating peak discharge. If potholes constitute more than one-third of the total drainage or if they intercept the drainage, the procedures in NEH-4 should be used to estimate the peak discharge.

Runoff curve numbers

The SCS runoff equation is:

$$Q = \frac{(P - I_a)^2}{(P - I_a) + S} \qquad \text{(Eq. 2-1)}$$

Where Q = runoff in inches,
P = rainfall in inches,
I_a = initial abstraction in inches, and
S = potential maximum retention after runoff begins in inches.

Initial abstraction (I_a) includes all losses before runoff begins. It includes water retained in surface depressions, water intercepted by vegetation, and water lost to evaporation and infiltration. I_a is highly variable but is generally correlated with soil and cover parameters. Through studies of many small agricultural watersheds, I_a was found to be approximated by:

$$I_a = 0.2S \qquad \text{(Eq. 2-2)}$$

Removing I_a as an independent parameter allows use of a combination of S and P to produce unique runoff volumes. Substituting equation 2-2 into equation 2-1 gives:

$$Q = \frac{(P - 0.2S)^2}{P + 0.8S} \qquad \text{(Eq. 2-3)}$$

The potential maximum retention can range from zero on a smooth, impervious surface to infinity in deep gravel. For greater convenience, the "S-values" were converted to runoff curve numbers (CN's) by the following transformation:

$$CN = \frac{1000}{10 + S} \qquad \text{(Eq. 2-4)}$$

According to equation 2-4, the CN is 100 when S is zero and approaches zero as S approaches infinity. Runoff curve numbers can be any value from zero to 100, but for practical applications are limited to a range of 40 to 98.

The runoff curve numbers in table 2-3 were developed by examining rainfall runoff data from small agricultural watersheds. The runoff curve number for a given soil-cover type is not a constant but varies from storm to storm. The index of runoff potential for a given storm is the antecedent runoff condition (ARC). ARC is an attempt to account for the variation in CN at a site from storm to storm. The runoff curve numbers in table 2-3 are for an average ARC and are used for design.

A representative curve number for a watershed can be estimated by area weighting using worksheet 1 as shown in example 2-1.

Rainfall

The 24-hour rainfall depths for a desired location and frequency can be obtained from the appropriate map in figures 2-2 through 2-25. The rainfall values for each of the 11 western conterminous States can be obtained from the U.S. National Weather Service, NOAA Atlas 2.

Estimating runoff

The runoff from a watershed may be expressed as the average depth of water that would cover the entire watershed. The depth is usually expressed in inches. The volume of runoff is computed by converting depth over the drainage area to volume and is usually expressed in acre-feet. When CN and rainfall (P) have been determined for the watershed, determine runoff (Q) by using figure 2-26 or table 2-2.

General

Time of concentration (T_c) is the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the outlet. T_c influences the peak discharge. For the same size watershed, the shorter the T_c, the larger the peak discharge. This means that peak discharge has an inverse relationship with T_c.

Estimating time of concentration

T_c can be estimated for small rural watersheds using the following empirical relationship:

$$T_c = \frac{\ell^{0.8}\left[\left(\frac{1000}{CN}\right) - 9\right]^{0.7}}{1140\ Y^{0.5}} \qquad \text{(Eq. 2-5)}$$

Where T_c = time of concentration in hours,
ℓ = flow length in feet,
CN = runoff curve number, and
Y = average watershed slope in percent.

Figure 2-27 is a nomograph for solving equation 2-5. T_c is determined using watershed parameters ℓ, CN, and Y. Worksheet 2 can be used to compute T_c. Example 2-2 demonstrates this procedure. For watersheds where hydraulic conditions are such that velocities of water flow need to be estimated (urban areas, etc.), then T_c should be estimated using TR-55 methods.

Average watershed slope

The average watershed slope (Y) is the slope of the land and not the watercourse. It can be determined from soil survey data or topographic maps. Hillside slopes can be measured with a hand level, Locke level, or clinometer in the direction of overland flow. Average watershed slope is an average of individual land slope measurements.

The average watershed slope can be determined using the following relationship:

$$Y = \frac{100CI}{A} \qquad \text{(Eq. 2-6)}$$

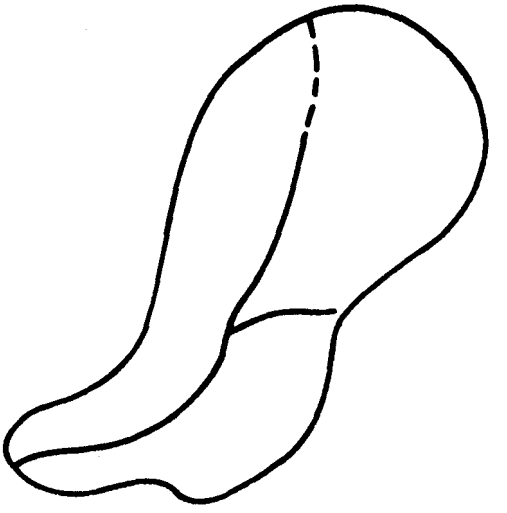
where Y = average watershed slope in percent,
C = total contour length in feet,
I = contour interval in feet, and
A = drainage area in square feet.

Flow length

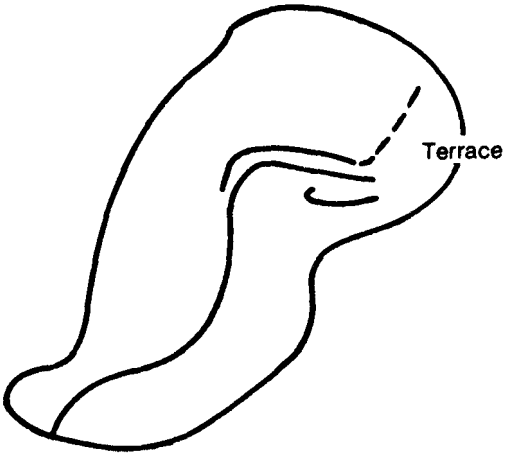
Flow length (ℓ) is the longest flow path in the watershed from the watershed divide to the outlet. It is the total path water travels overland and in small channels on the way to the outlet. The flow length can be determined using a map wheel or it can be marked along the edge of a paper and converted to feet.

Some typical examples of determining the flow length are shown below.

Natural Watershed. In this case, water flows from the watershed divide to a small channel, down the small channel to the main stream, and from there to the watershed outlet.



Watershed with Terraces. In this case, water flows from the divide to the terrace, along the terrace to the outlet or main stream, and then along the main stream to the outlet.



General

Using runoff, I_a/P, time of concentration, and drainage area, the peak discharge can be estimated using exhibits 2-IA, 2-I, 2-II, and 2-III.

I_a/P Ratio

The watershed CN is used to determine the initial abstraction (I_a) from table 2-4. I_a/P ratio is a parameter that indicates how much of the total rainfall is needed to satisfy the initial abstraction. The larger the I_a/P ratio, the lower the unit peak discharge (q_u) for a given T_c. This indicates that if initial abstraction is a high portion of rainfall, the peak discharge will be lower. Thus, the I_a/P ratio is greater for smaller storms.

If the computed I_a/P ratio is outside the range shown (0.1 to 0.50) in exhibits 2-I through 2-III, then the limiting values should be used; i.e., use 0.1 if less than 0.1 and use 0.5 if greater than 0.5. If the ratio falls between the limiting values, use linear interpolation.

Estimating peak discharge

The unit peak discharge (q_u) is obtained from exhibits 2-I, 2-IA, 2-II, or 2-III, depending on the rainfall type. Figure 2-1 shows the approximate geographic boundaries for the four rainfall distributions. T_c and I_a/P values are needed to obtain a value for q_u from the exhibit. The peak discharge (q_p) is computed as the product of the unit peak discharge (q_u), the drainage area (A), and the runoff (Q).

$$q_p = q_u \times A \times Q \qquad \text{(Eq. 2-7)}$$

Worksheet 2 can be used to determine q_p as shown in example 2-2.

6. Limitations

The watershed drainage area must be greater than 1.0 acre and less than 2,000 acres. If the drainage area is outside these limits, another procedure such as TR-55 or TR-20, Project Formulation–Hydrology, should be used to estimate peak discharge.

- The watershed should have only one main stream. If more than one exists, the branches must have nearly equal T_c's.
- The watershed must be hydrologically similar; i.e., able to be represented by a weighted CN. Land use, soils, and cover are distributed uniformly throughout the watershed. The land use must be primarily rural. If urban conditions are present and not uniformly distributed throughout the watershed, or if they represent more than 10 percent of the watershed, then TR-55 or other procedures must be used.
- If the computed T_c is less than 0.1 hour, use 0.1 hour. If the computed T_c is greater than 10 hours, peak discharge should be estimated by using the NEH-4 procedures, which are automated in the TR-20 computer program.
- When the flow length is less than 200 feet or greater than 26,000 feet, use another procedure to estimate T_c. TR-55 provides an alternative procedure for estimating T_c and peak discharge.
- Runoff and peak discharge from snowmelt or rain on frozen ground cannot be estimated using these procedures. NEH-4 provides a procedure for estimating peak discharge in these situations.
- If potholes constitute more than one-third of the total drainage area or if they intercept the drainage, the procedures in NEH-4 should be used.
- When the average watershed slope is less than 0.5 percent, a different unit hydrograph shape can be used. Contact the State Conservation Engineer for necessary information.
- When the weighted CN is less than 40 or more than 98, use another procedure to estimate peak discharge.
- When the average watershed slope is greater than 64 percent or less than 0.5 percent, use another procedure to estimate T_c. An alternative procedure is shown in TR-55 for estimating T_c and peak discharge.

Accuracy of peak discharge estimated by this method will be reduced if I_a/P ratio used is outside the range given in exhibits 2-I, 2-II, 2-IA, and 2-III. The limiting I_a/P ratios are to be used; i.e., if I_a/P in the exhibit 2-II is less than 0.1, use 0.1; and if I_a/P is greater than 0.5, use 0.5.

7. Example 2-1—Estimating Weighted CN

Given a 90-acre watershed in the Type II storm distribution area, determine the weighted curve number for the drainage area above a proposed waterway. The available soils map shows that the major soils are Dover, Berks, and Easton in field #2 of A.B. Smith's farm in Adams County, MD. By soil, the cover description breaks down as 25 acres of pasture in good condition on Dover, 55 acres of row crop in straight rows in good condition on Berks, and 10 acres of woods in poor condition on Easton. Use worksheet 1 to develop the weighted curve number for the watershed.

Example 2.1 —Worksheet 1: Runoff curve number (CN)

Client AB SMITH (FIELD #2) By DEW Date 6/6/87

County ADAMS State MD Checked KO Date 6/6/87

Practice WATERWAY

Soil name and hydrologic group (table 2-1)	Cover description (cover type, treatment, and hydrologic condition)	CN (table 2-3)	Area (acres or %)	Product of CN × area
DOVER B	PASTURE IN GOOD CONDITION	61	25	1525
BERKS C	STRAIGHT ROW CROPS, GOOD	85	55	4675
EASTON D	WOODS, POOR	83	10	830
		Totals =	90	7030

CN (weighted) = $\frac{7030}{90} = 78.1$; Use CN = 78

8. Example 2-2—Estimating Peak Discharge

Given a 90-acre watershed in the Type II storm distribution area, determine the peak discharges for the 2-, 5-, and 10-year events. The available soils map shows Dover, Berks, and Easton soils in the drainage area above the proposed waterway in field #2 of A.B. Smith's farm in Adams County, MD. The cover by soil types and weighted CN is shown in example 2-1. The average watershed slope is 1 percent, and the flow length is 3,400 feet. The 2-year, 24-hour precipitation is 3.4 inches; the 5-year, 24-hour precipitation is 4.5 inches; and the 10-year, 24-hour precipitation is 5.5 inches. Use worksheet 2 to develop the desired peak discharge estimates.

Example 2.2 —**Worksheet 2: Time of concentration and peak discharge**

Client AB SMITH (FIELD #2) By DEW Date 6/6/87

County ADAMS State MD Checked TAS Date 6/7/87

Practice WATERWAY

Estimating time of concentration

1. Data:

Rainfall distribution type	=	II	(I, IA, II, III)
Drainage area	A =	90	ac
Runoff curve number	CN =	78	(Worksheet 1)
Watershed slope	Y =	1	%
Flow length	ℓ =	3400	ft

2. T_c using ℓ, Y, CN and figure 2-27 = _____ hrs

or using equation 2-5

$$T_c = \frac{\ell^{0.8}\left[\left(\frac{1000}{CN}\right) - 9\right]^{0.7}}{1140\ Y^{0.5}} = \frac{(3400)^{0.8}(3.82)^{0.7}}{1140\ (1)^{0.5}} = 1.5 \text{ hrs}$$

Estimating peak discharge

			Storm #1	Storm #2	Storm #3
1.	Frequency	yr	2	5	10
2.	Rainfall, P (24-hour)	in	3.4	4.5	5.5
3.	Initial abstraction, I_a (Use CN with table 2-4)	in	.564	.564	.564
4.	Compute I_a/P ratios		.17	.13	.10
5.	Unit peak discharge q_u (Use T_c and I_a/P with exhibit 2-11)	cfs/ac/in	.40	.42	.43
6.	Runoff, Q (Use P and CN with figure 2-26 or table 2-2)	in	1.42	2.3	3.1
7.	Peak discharge, q_p (Where $q_p = q_u$ AQ)	cfs	51	87	120

RUNOFF CURVE NUMBERS
TABLE IA2-1

COVER TYPE	LAND USE AND TREATMENT	HYDROLOGIC CONDITION	A	CN	B	CN	C	CN	D	CN
	Rotational No-Till OR No-Till	Good		60		69		75		80

1) Rotational No-Till – A mostly no-till operation but includes a mulch till or conventional till (full width tillage) operation once in a 2-7 year period. STIR (Soil Tillage Intensity Rating from RUSLE2) values are between 6-30.
2) No-Till – Every year soil and residue are left undisturbed from harvest to planting except for nutrient injection. STIR values are between 0-5.

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2) No-Till – Every year soil and residue are left undisturbed from harvest to planting except for nutrient injection. STIR values are between 0-5.

Exhibit 2-I —**Unit peak discharge (q_u) for SCS Type I rainfall distribution**

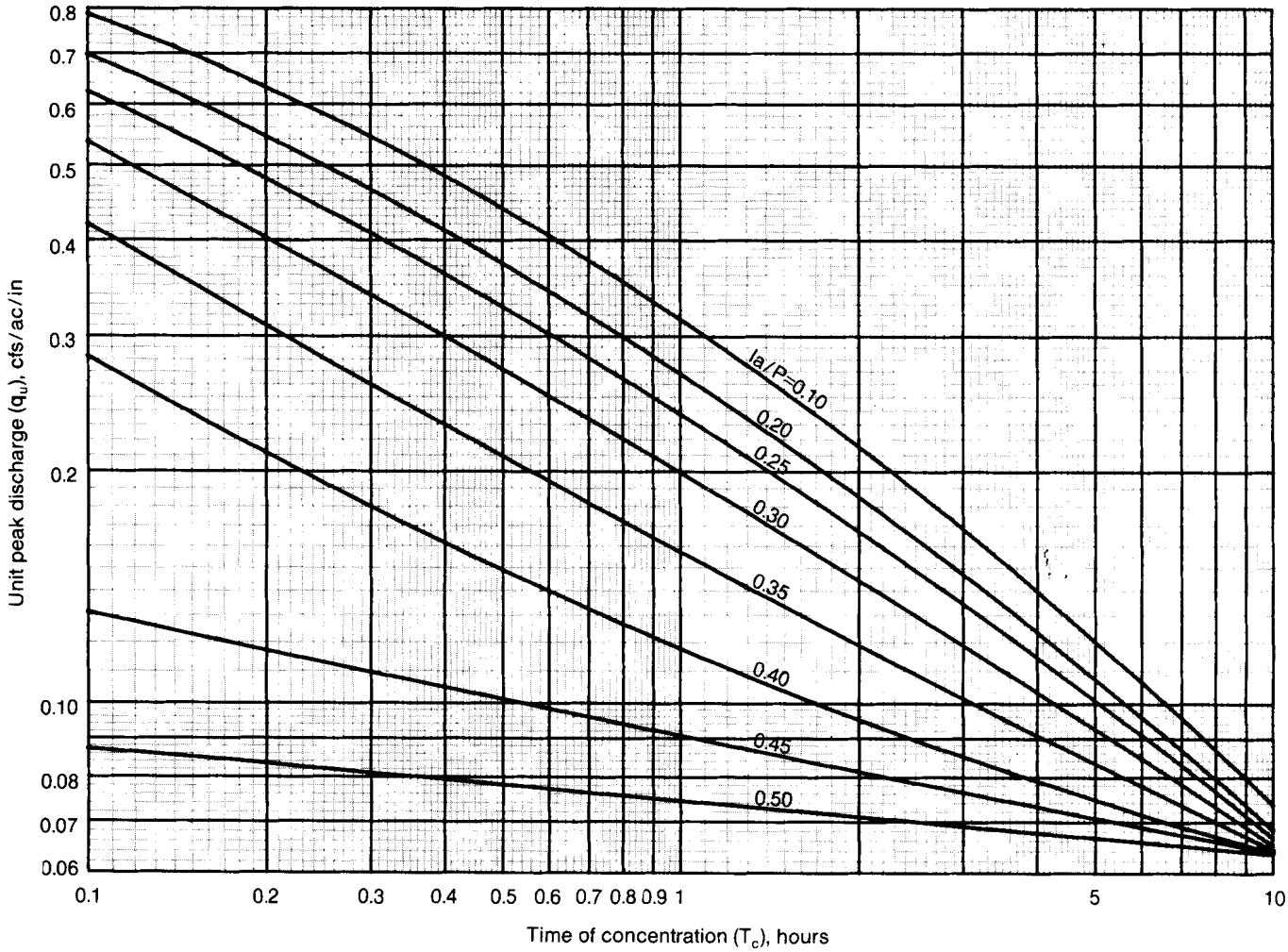


Exhibit 2-IA —**Unit peak discharge (q_u) for SCS Type IA rainfall distribution**

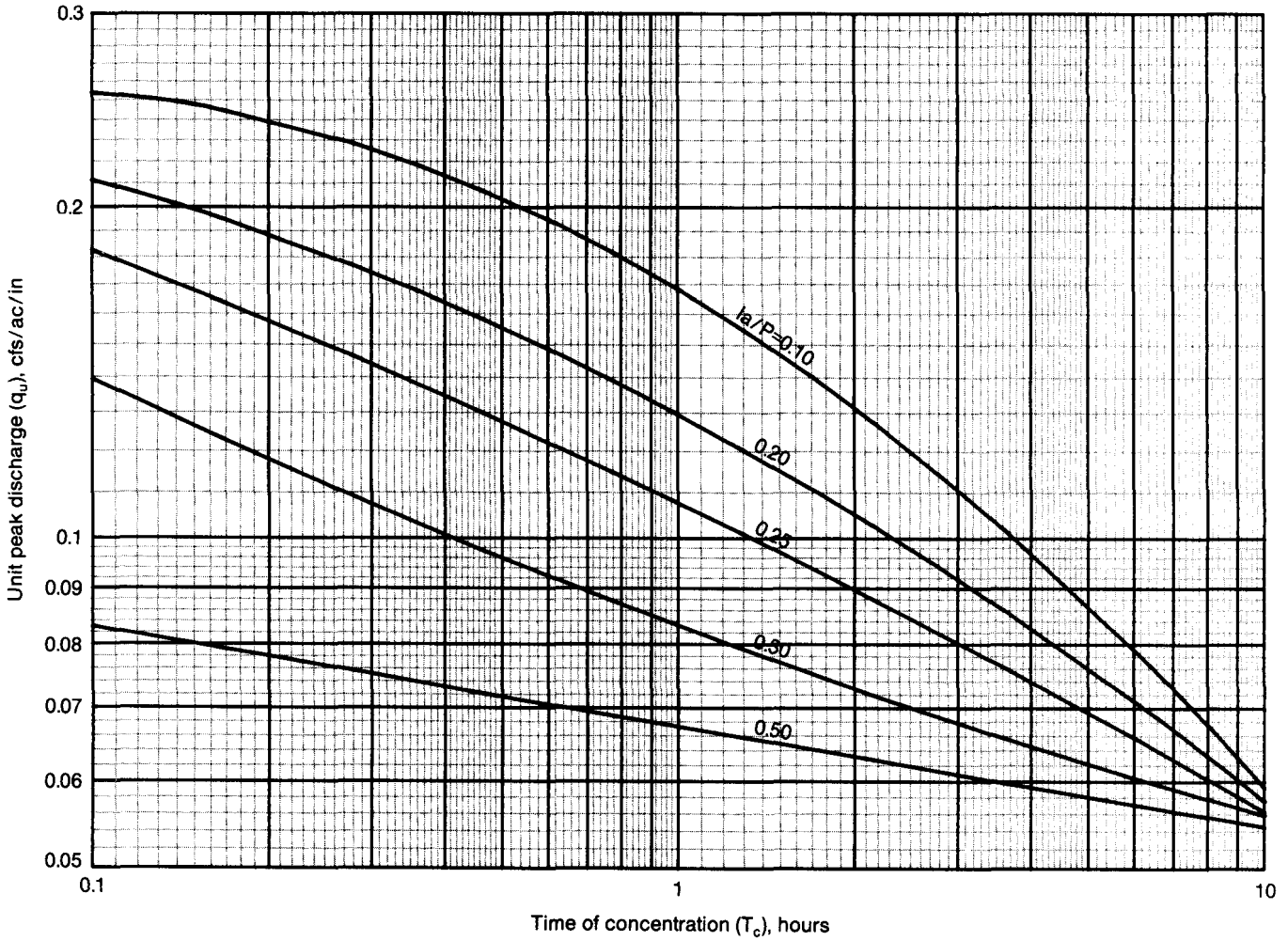


Exhibit 2-II —**Unit peak discharge (q_u) for SCS Type II rainfall distribution**

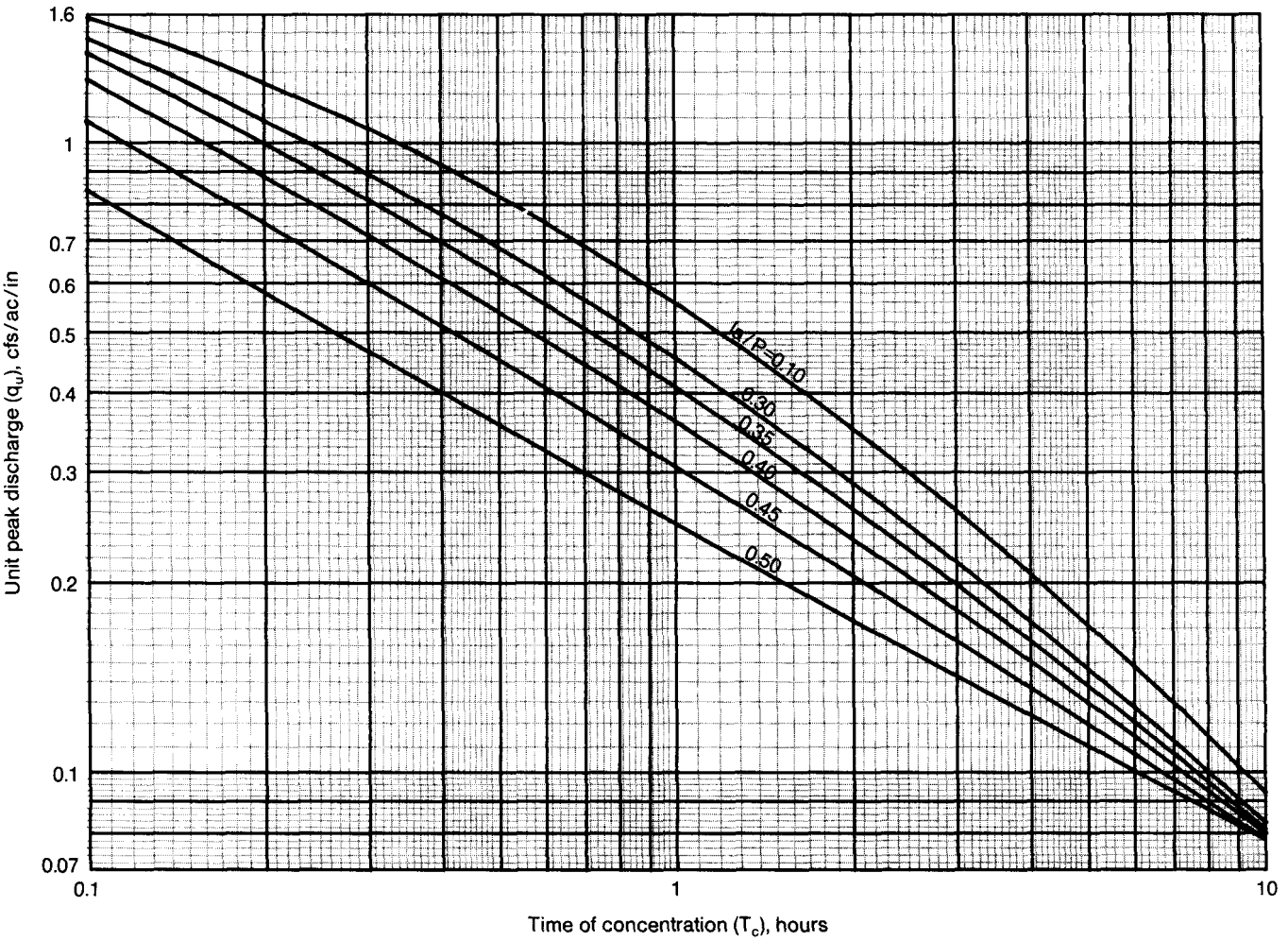


Exhibit 2-III —**Unit peak discharge (q_u) for SCS Type III rainfall distribution**

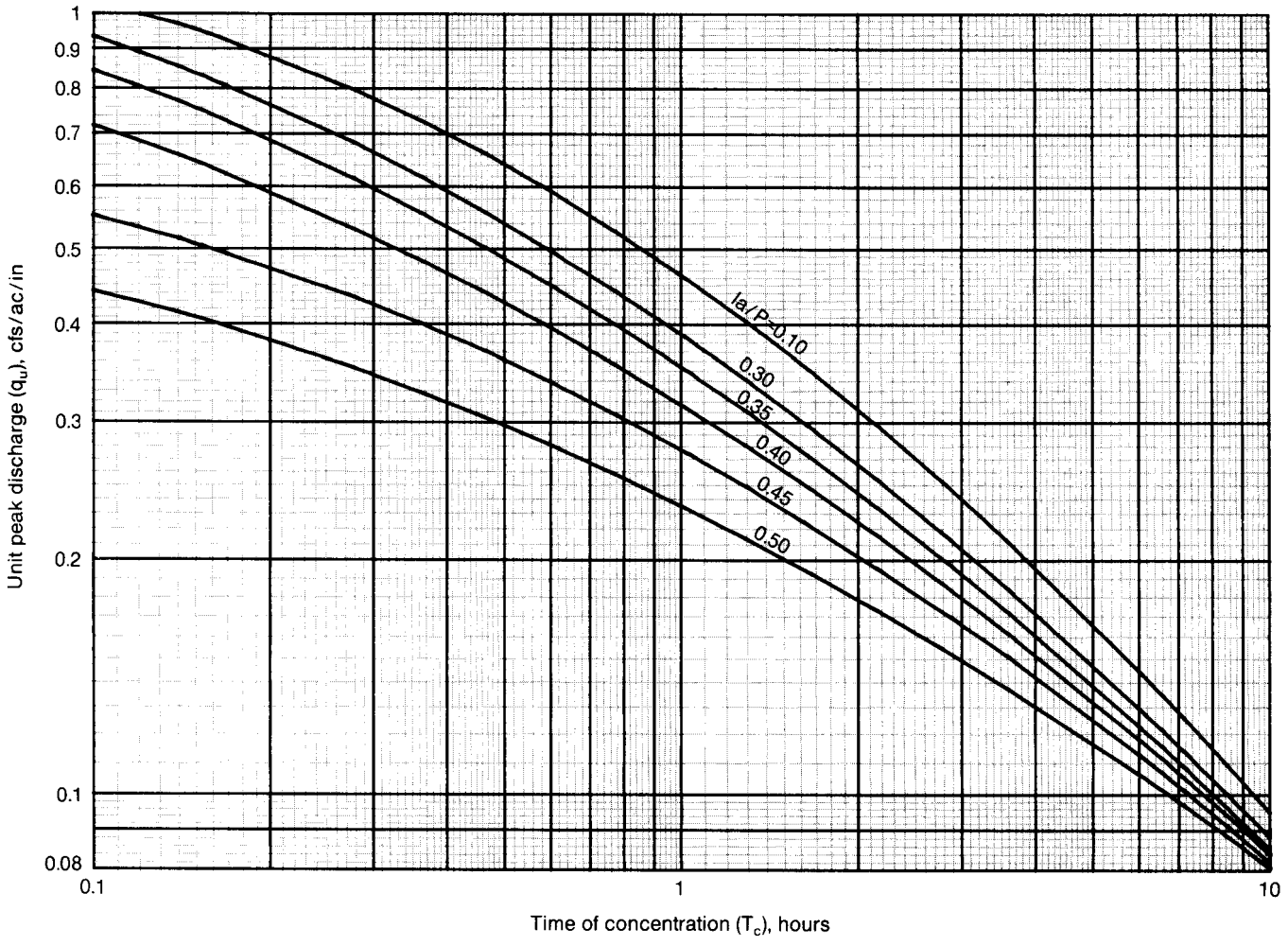


Figure 2-1 —**Approximate geographic boundaries for SCS rainfall distributions**

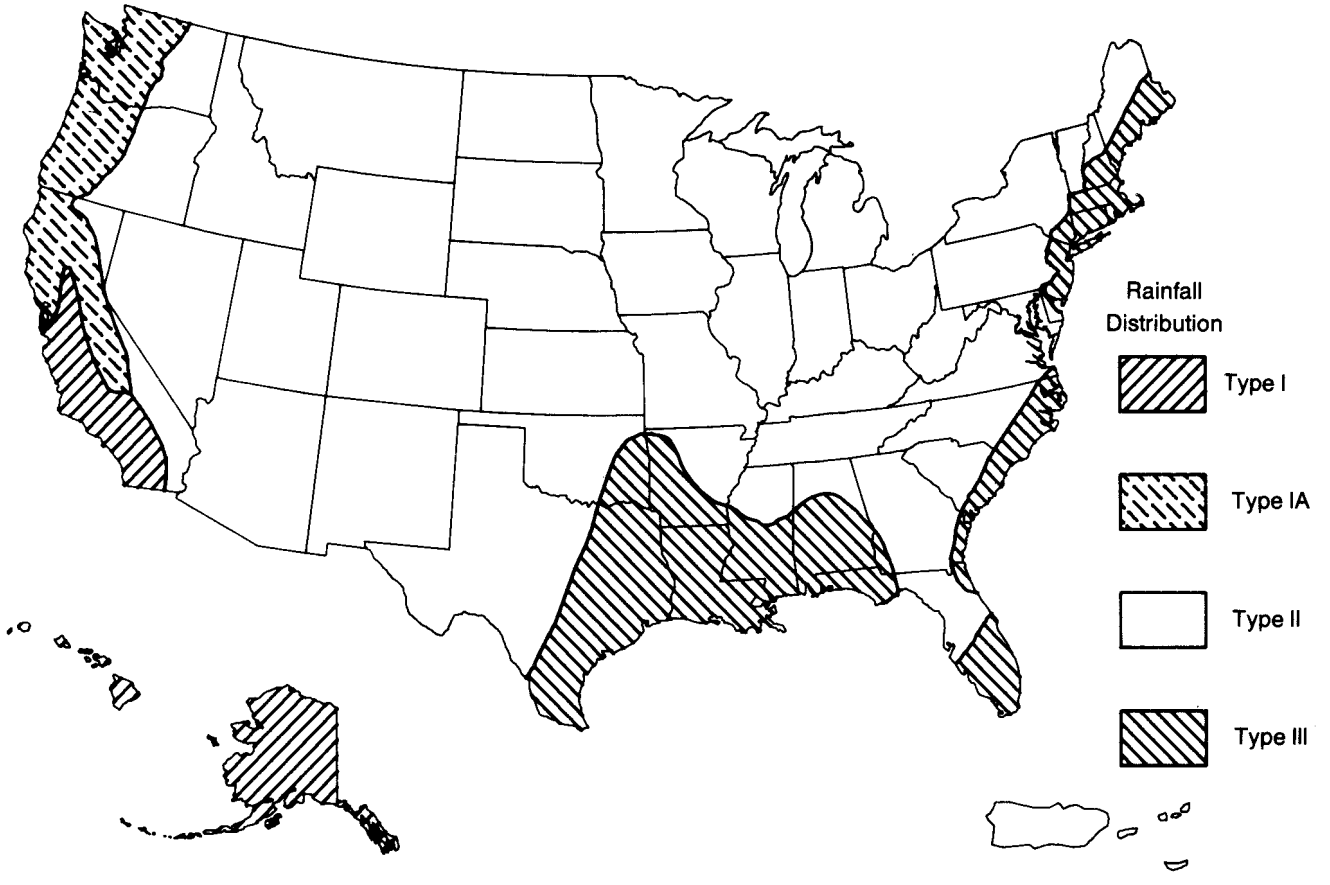
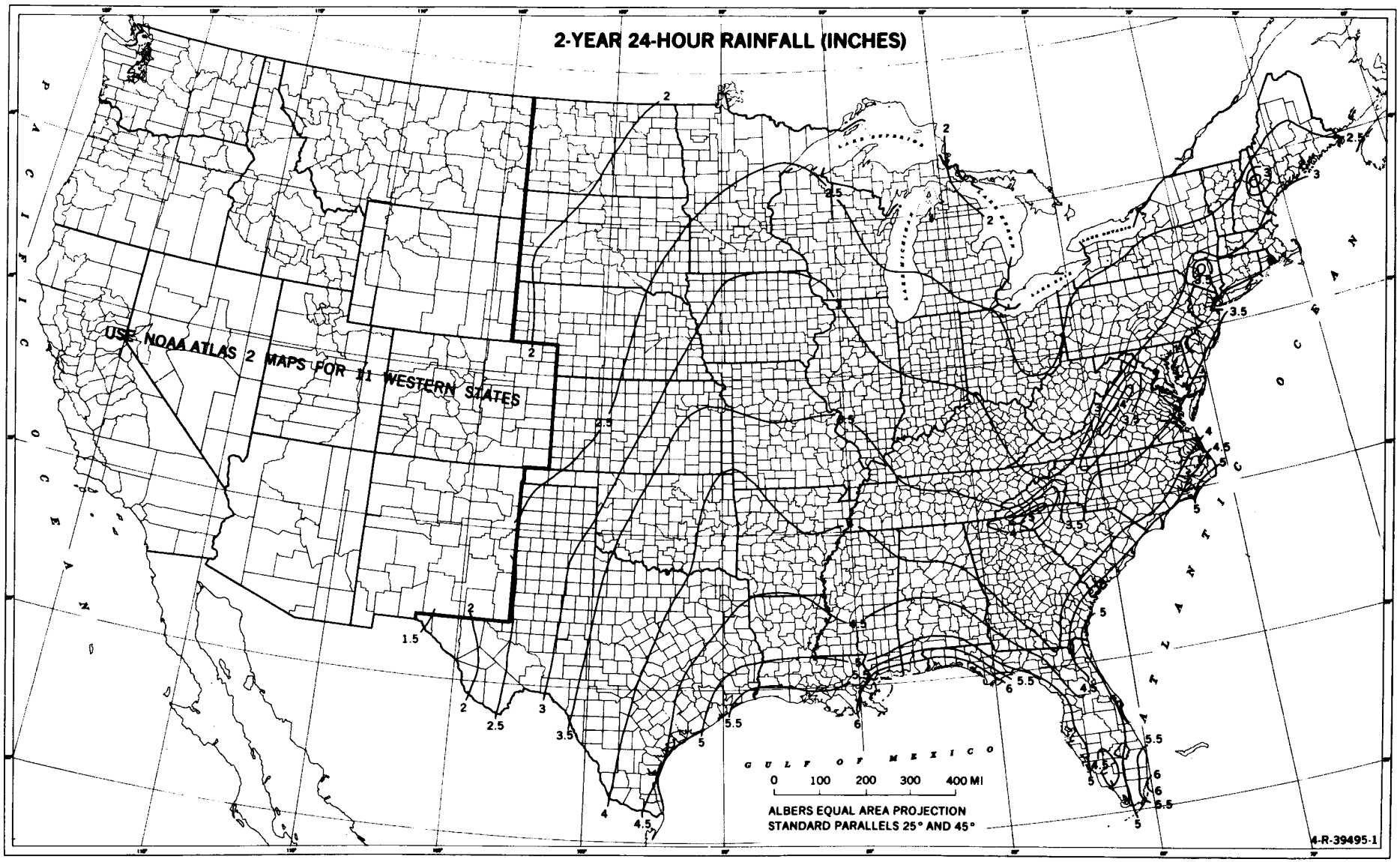
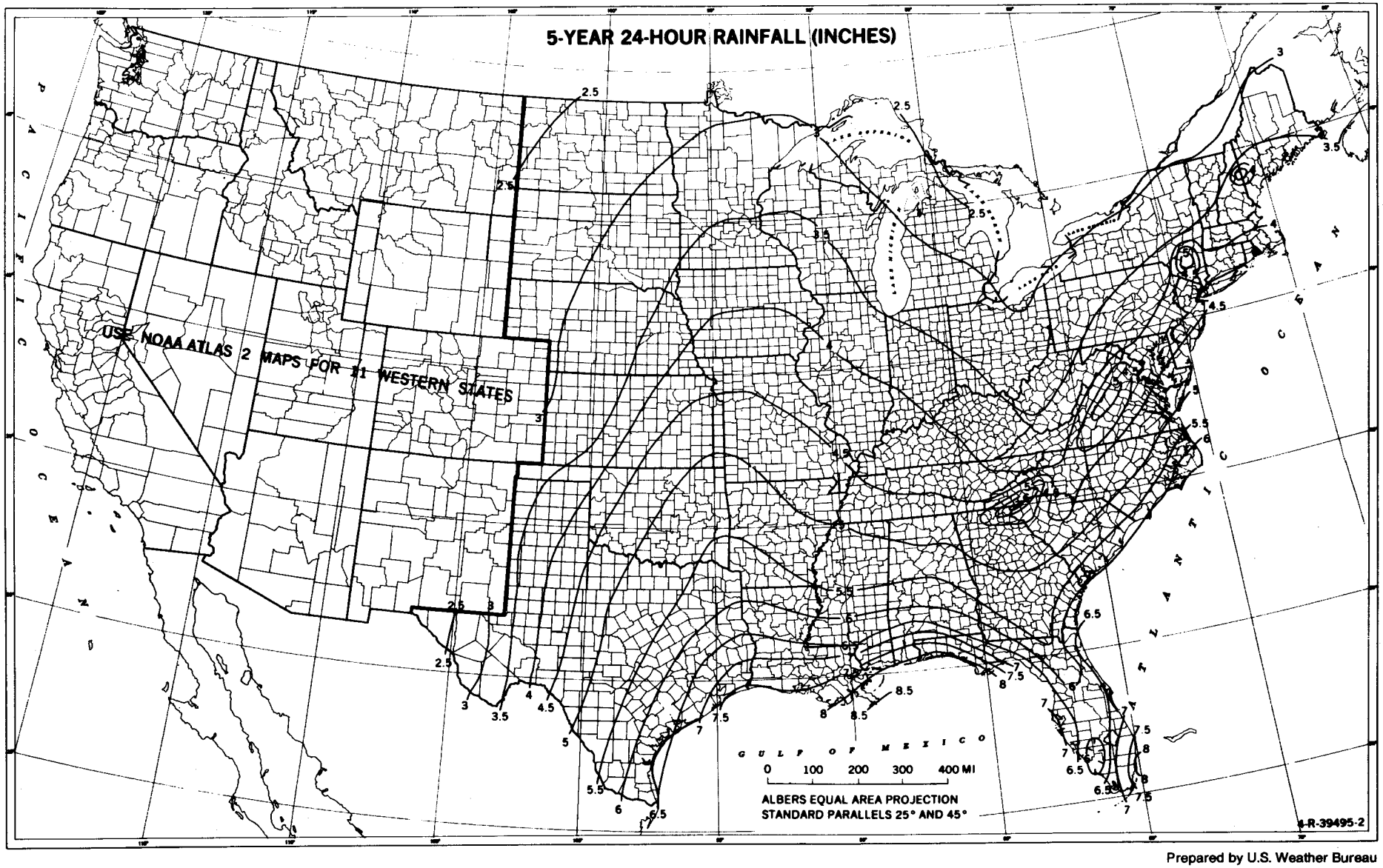


Figure 2-2 —**Precipitation values for the Eastern United States—2-year 24-hour rainfall (inches)**



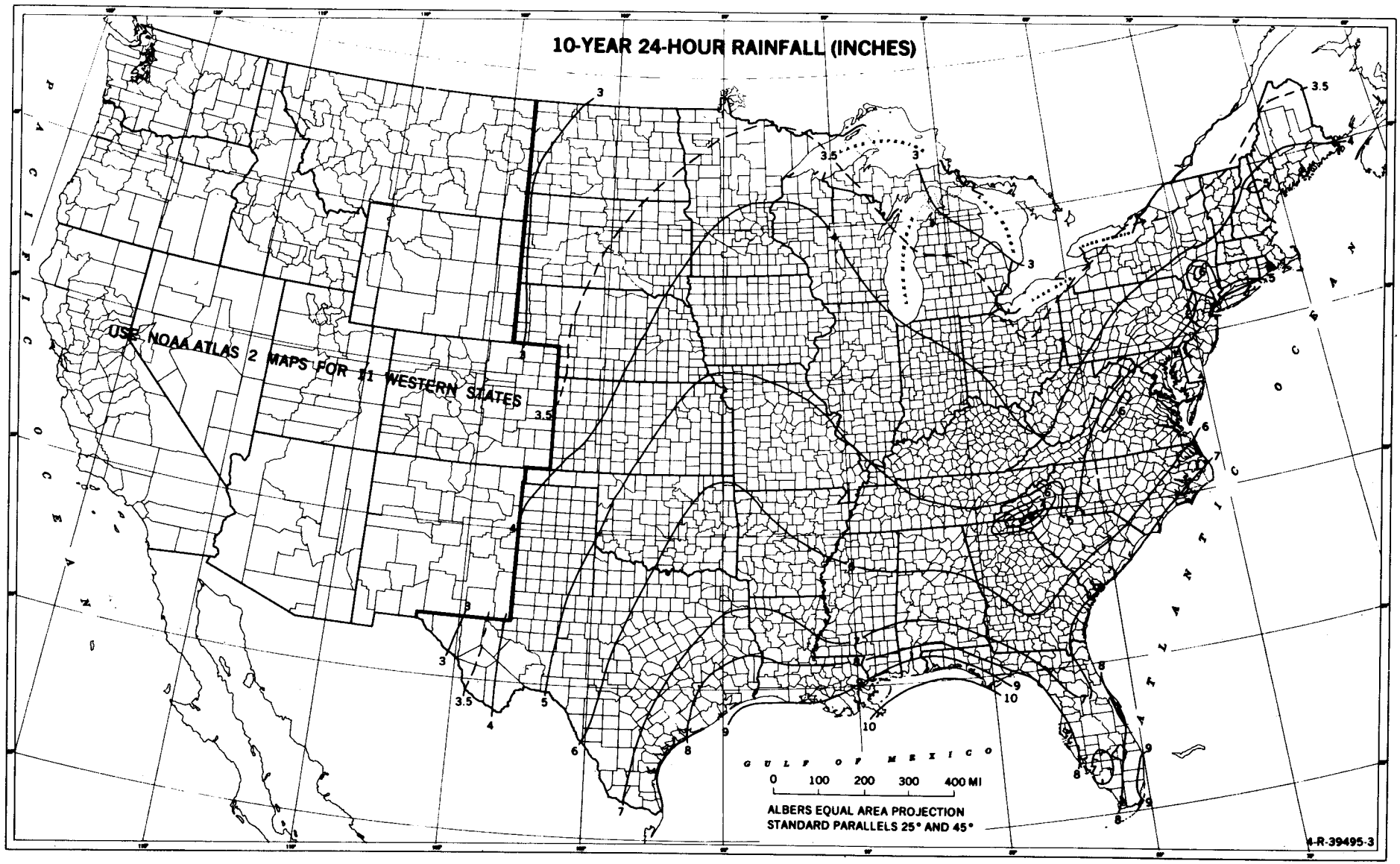
Prepared by U.S. Weather Bureau

Figure 2-3 —**Precipitation values for the Eastern United States—5-year 24-hour rainfall (inches)**



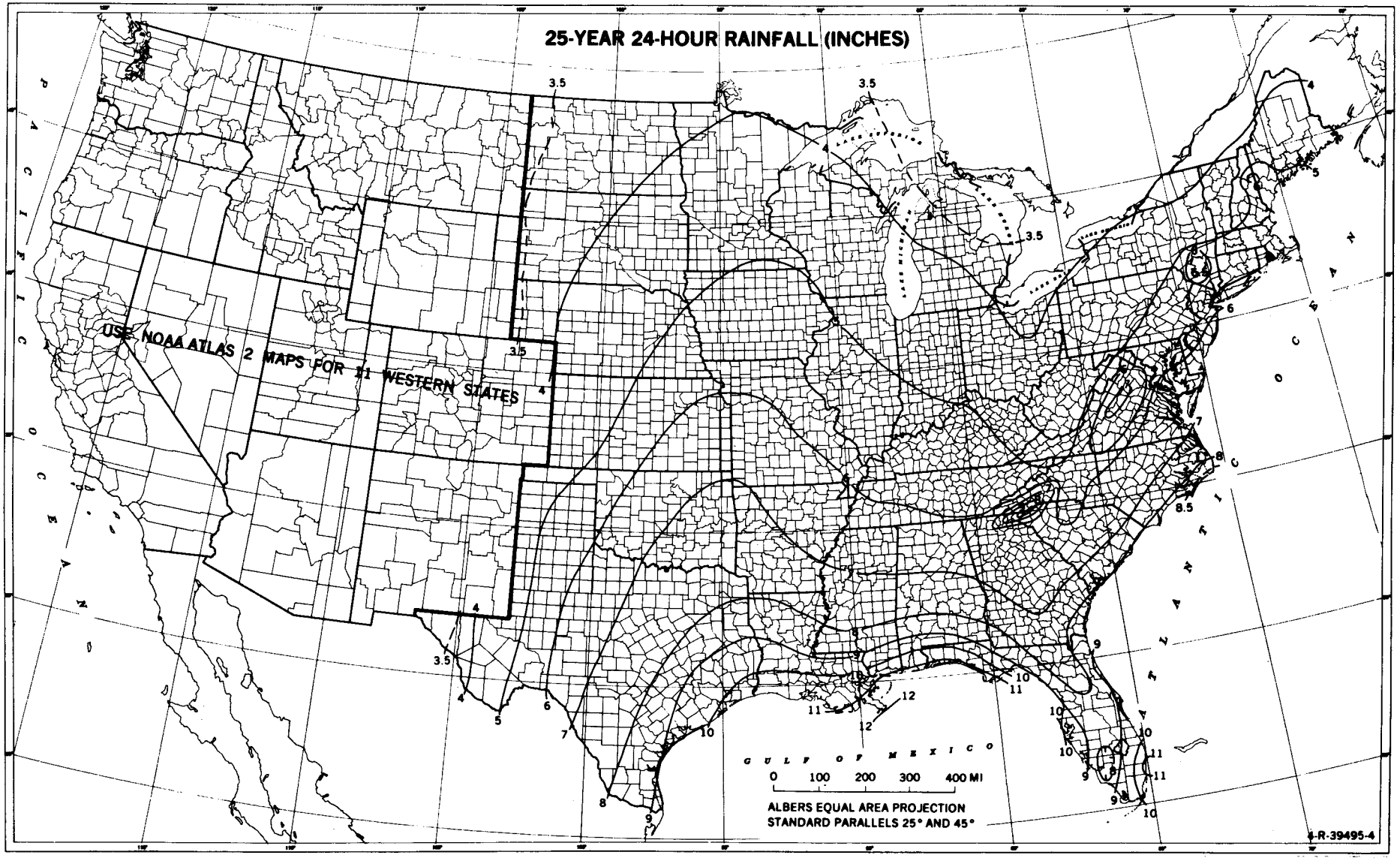
Prepared by U.S. Weather Bureau

Figure 2-4 —**Precipitation values for the Eastern United States—10-year 24-hour rainfall (inches)**



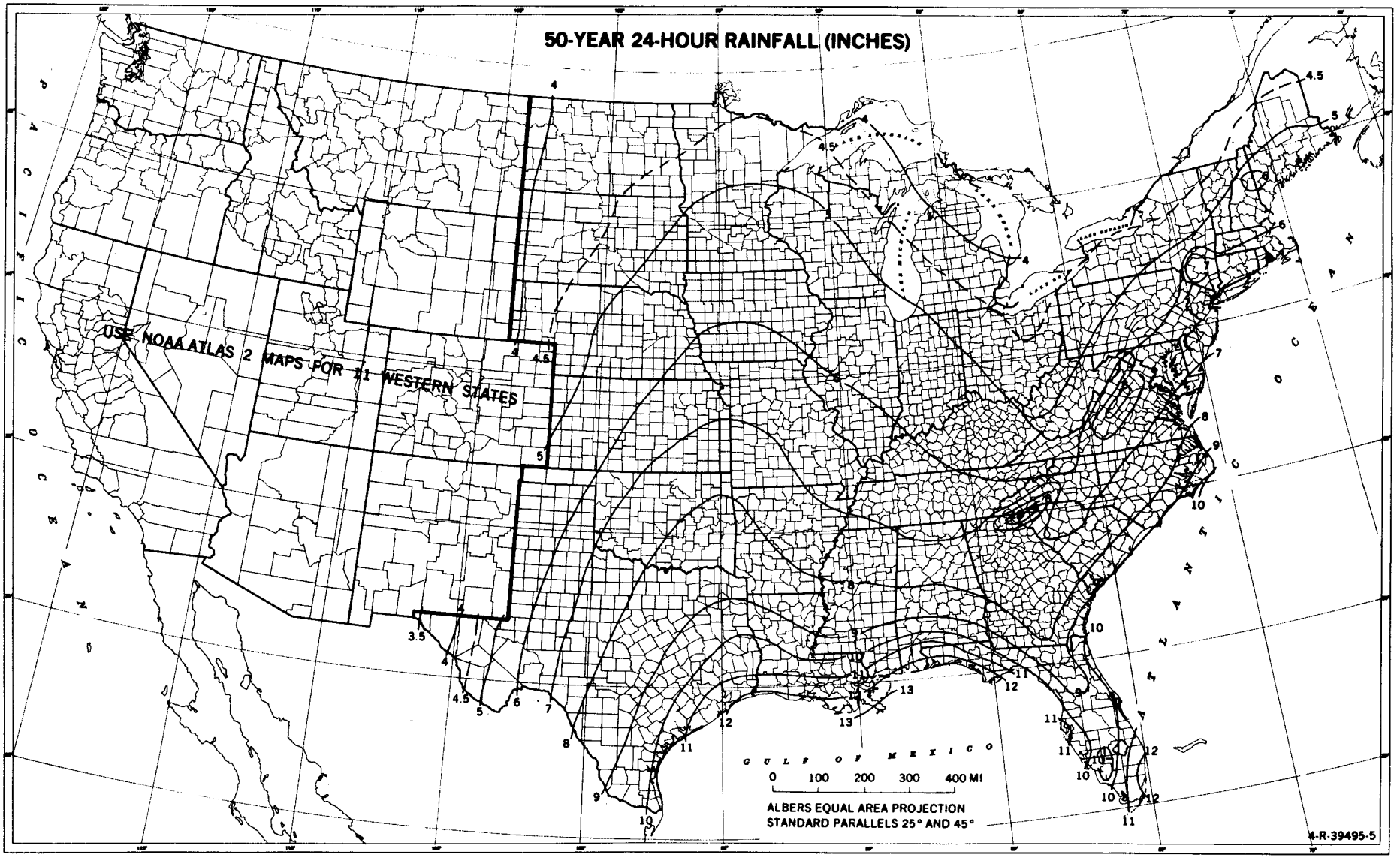
Prepared by U.S. Weather Bureau

Figure 2-5 —**Precipitation values for the Eastern United States—25-year 24-hour rainfall (inches)**



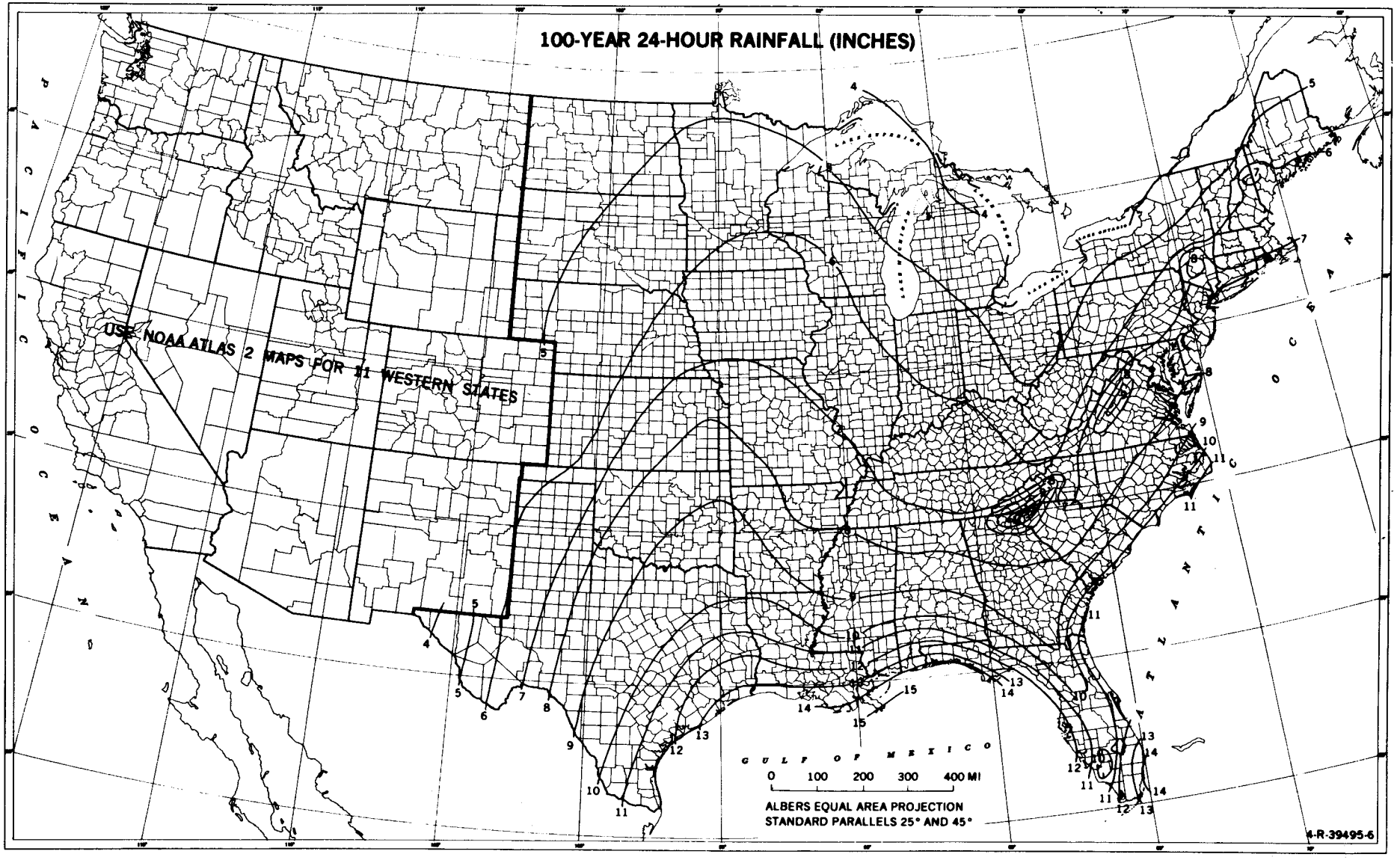
Prepared by U.S. Weather Bureau

Figure 2-6 —**Precipitation values for the Eastern United States—50-year 24-hour rainfall (inches)**



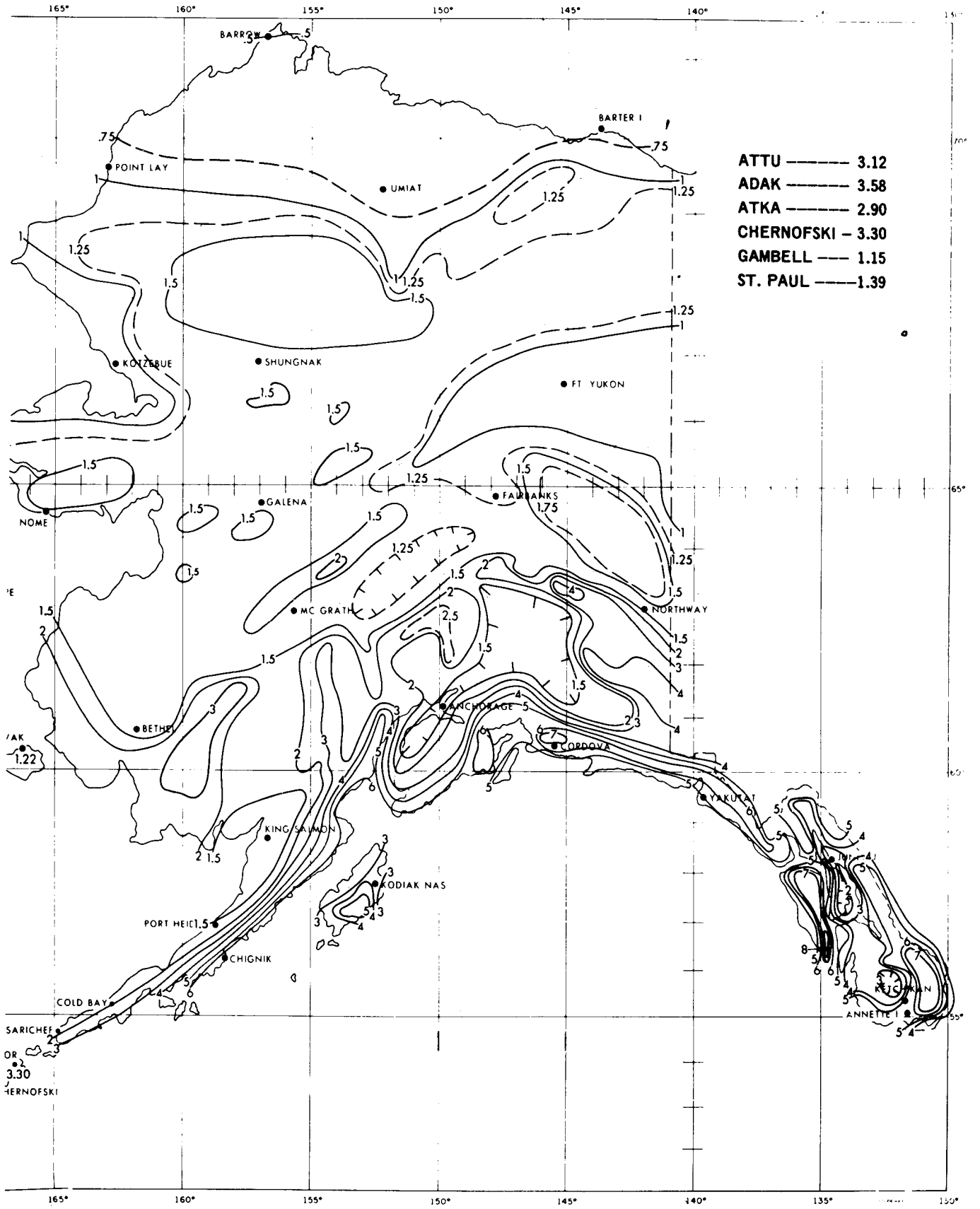
Prepared by U.S. Weather Bureau

Figure 2-7 —**Precipitation values for the Eastern United States—100-year 24-hour rainfall (inches)**



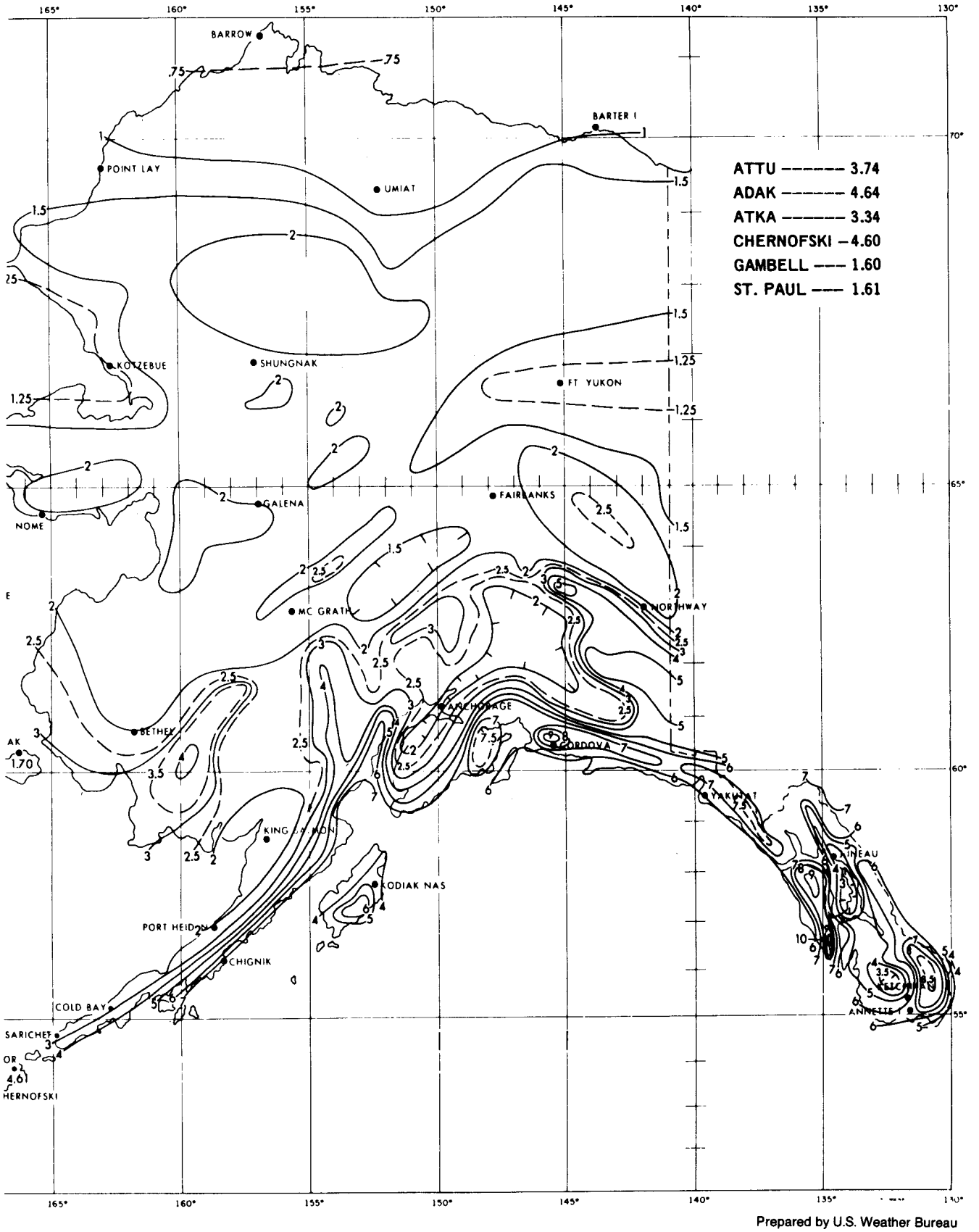
Prepared by U.S. Weather Bureau

Figure 2-8 —**Precipitation values for Alaska—2-year 24-hour rainfall (inches)**



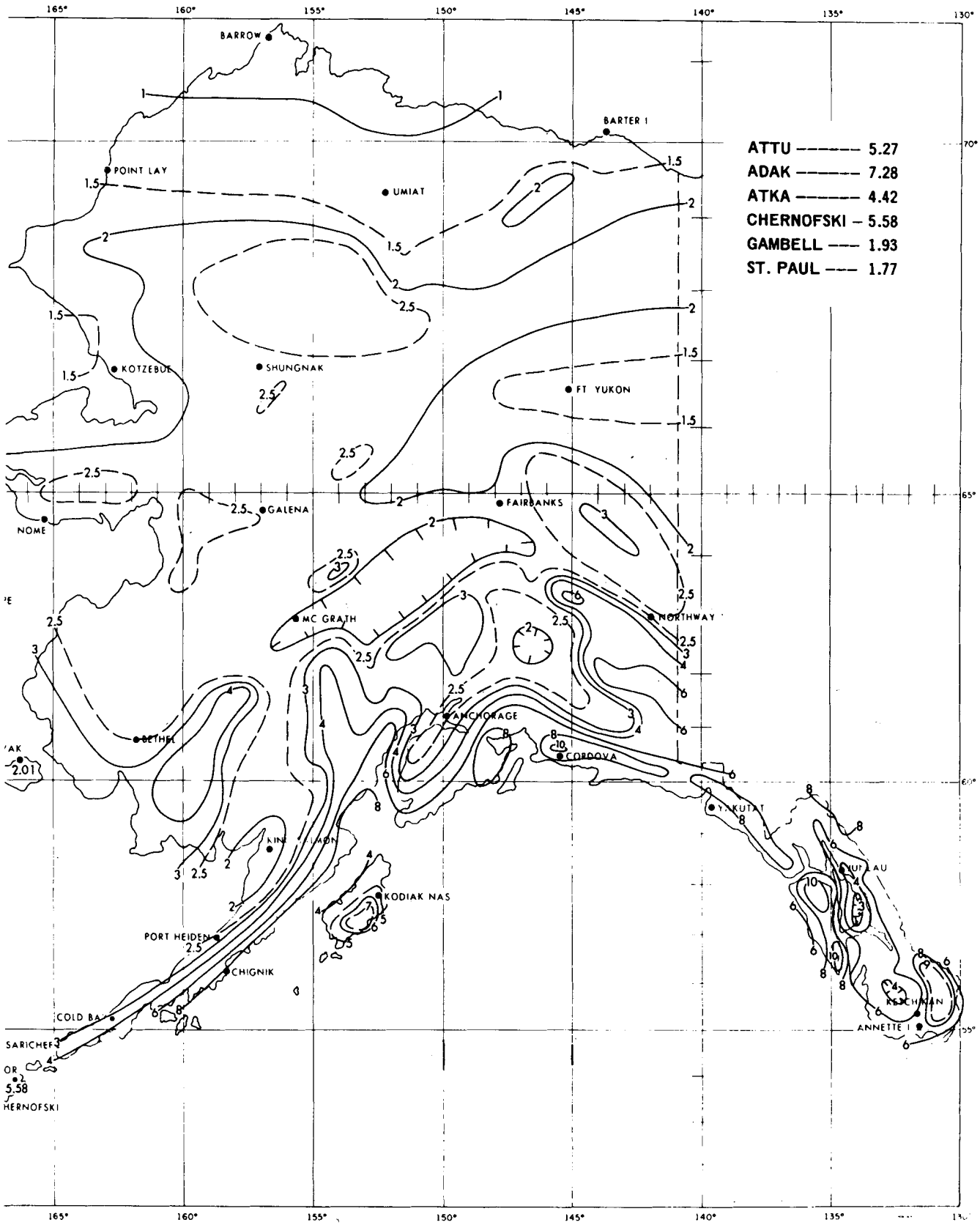
Prepared by U.S. Weather Bureau

Figure 2-9 —**Precipitation values for Alaska—5-year 24-hour rainfall (inches)**



Prepared by U.S. Weather Bureau

Figure 2-10 —**Precipitation values for Alaska—10-year 24-hour rainfall (inches)**



Prepared by U.S. Weather Bureau

Figure 2-11—**Precipitation values for Alaska—25-year 24-hour rainfall (inches)**

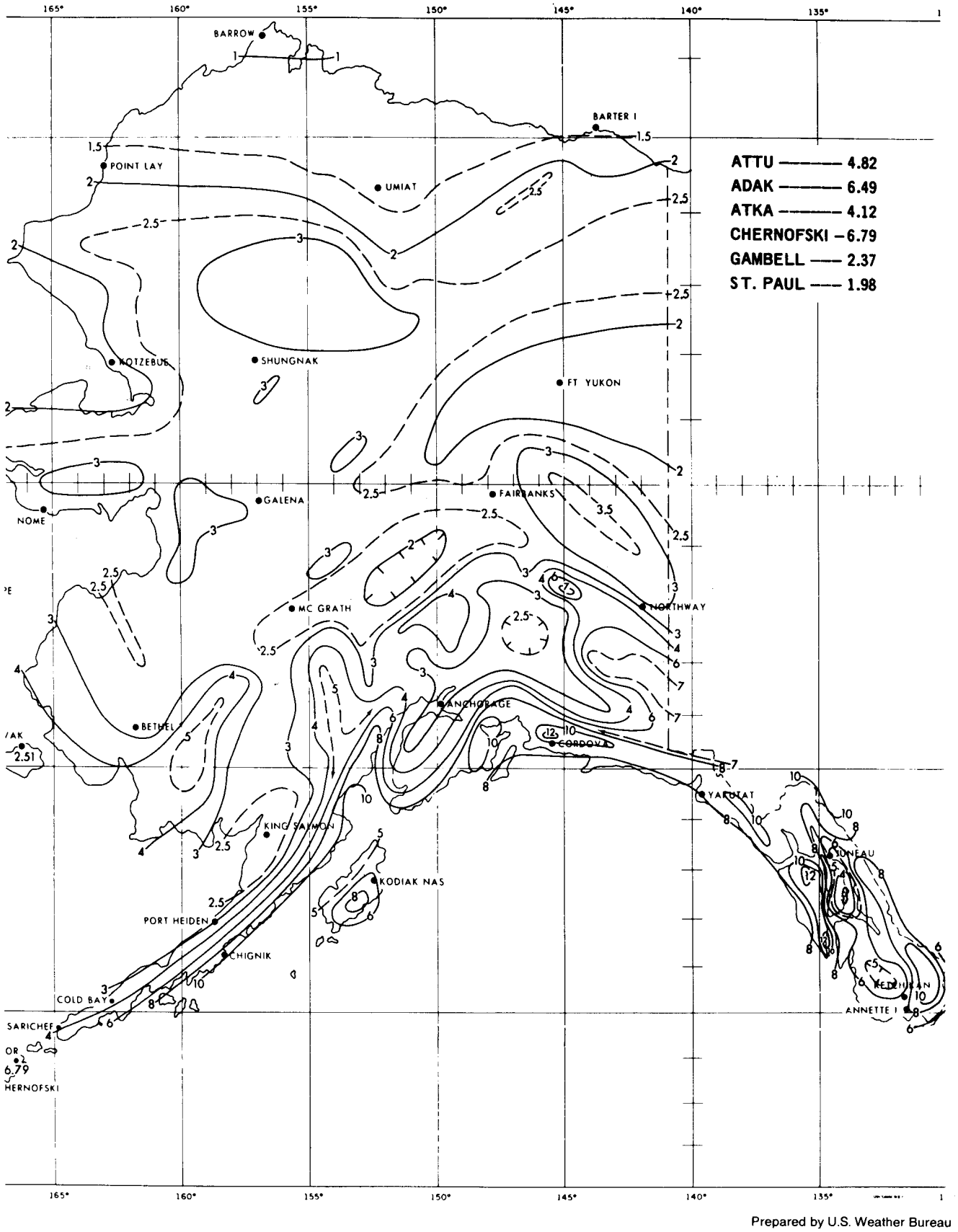


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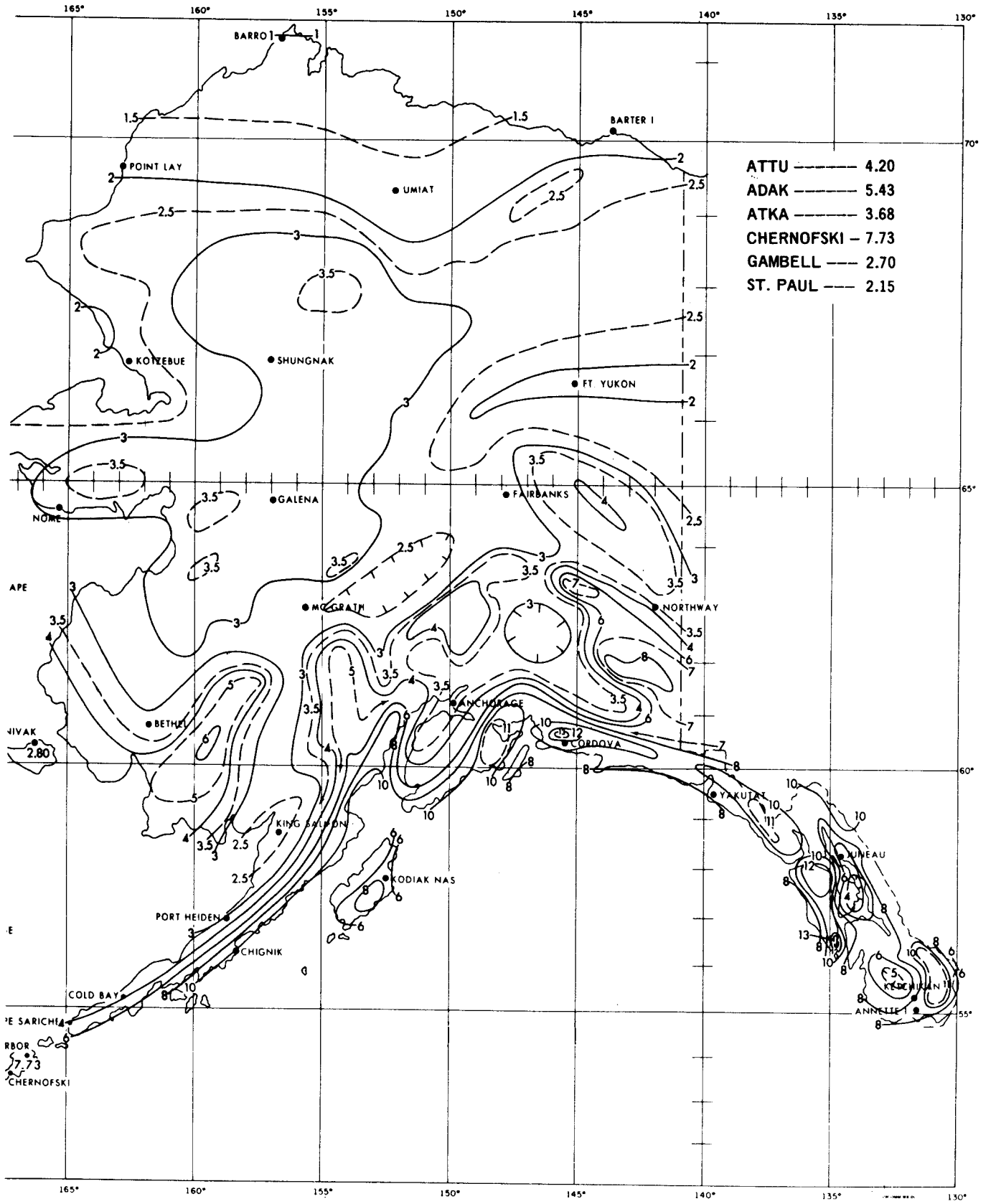
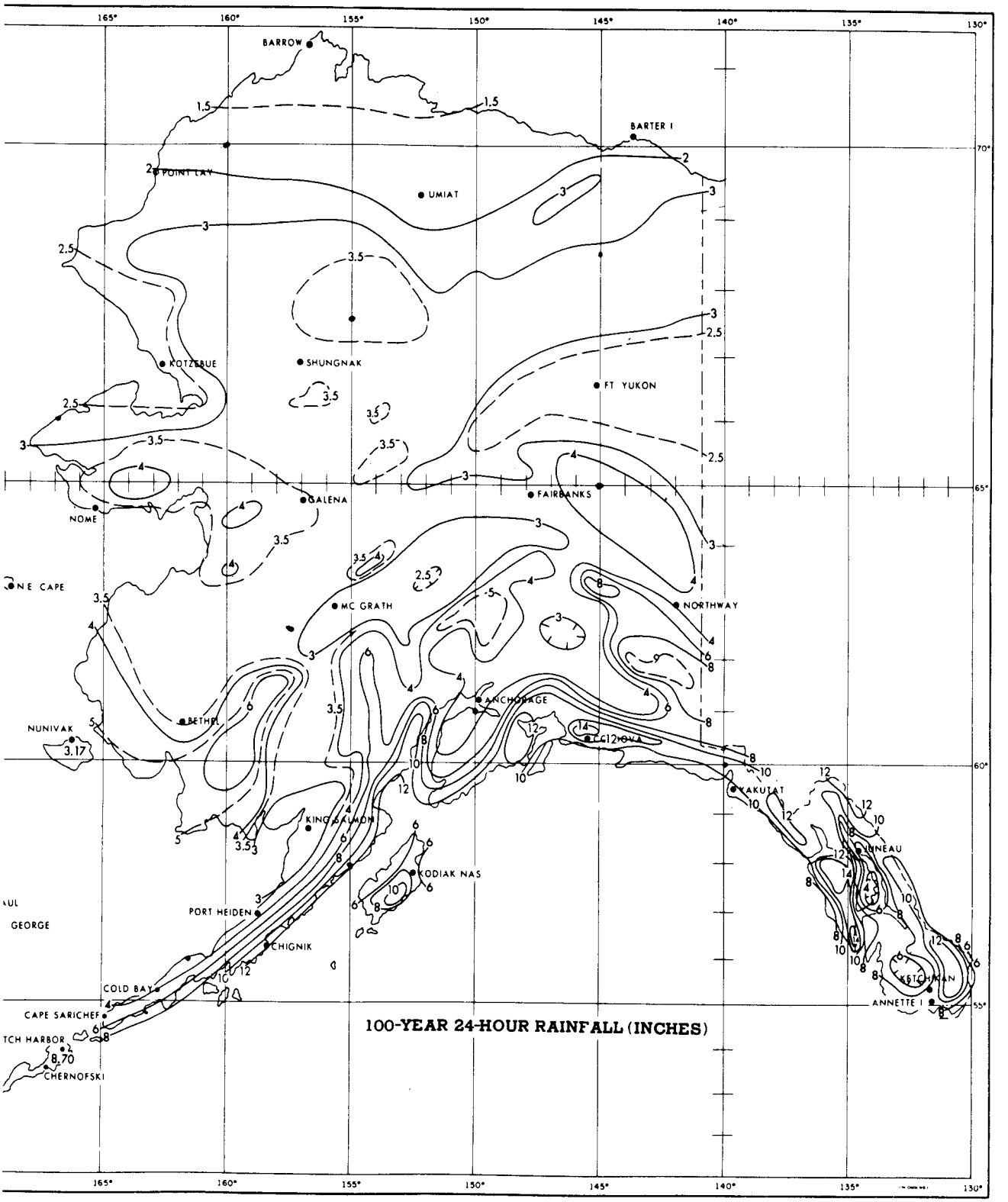
Figure 2-12 —**Precipitation values for Alaska—50-year 24-hour rainfall (inches)**



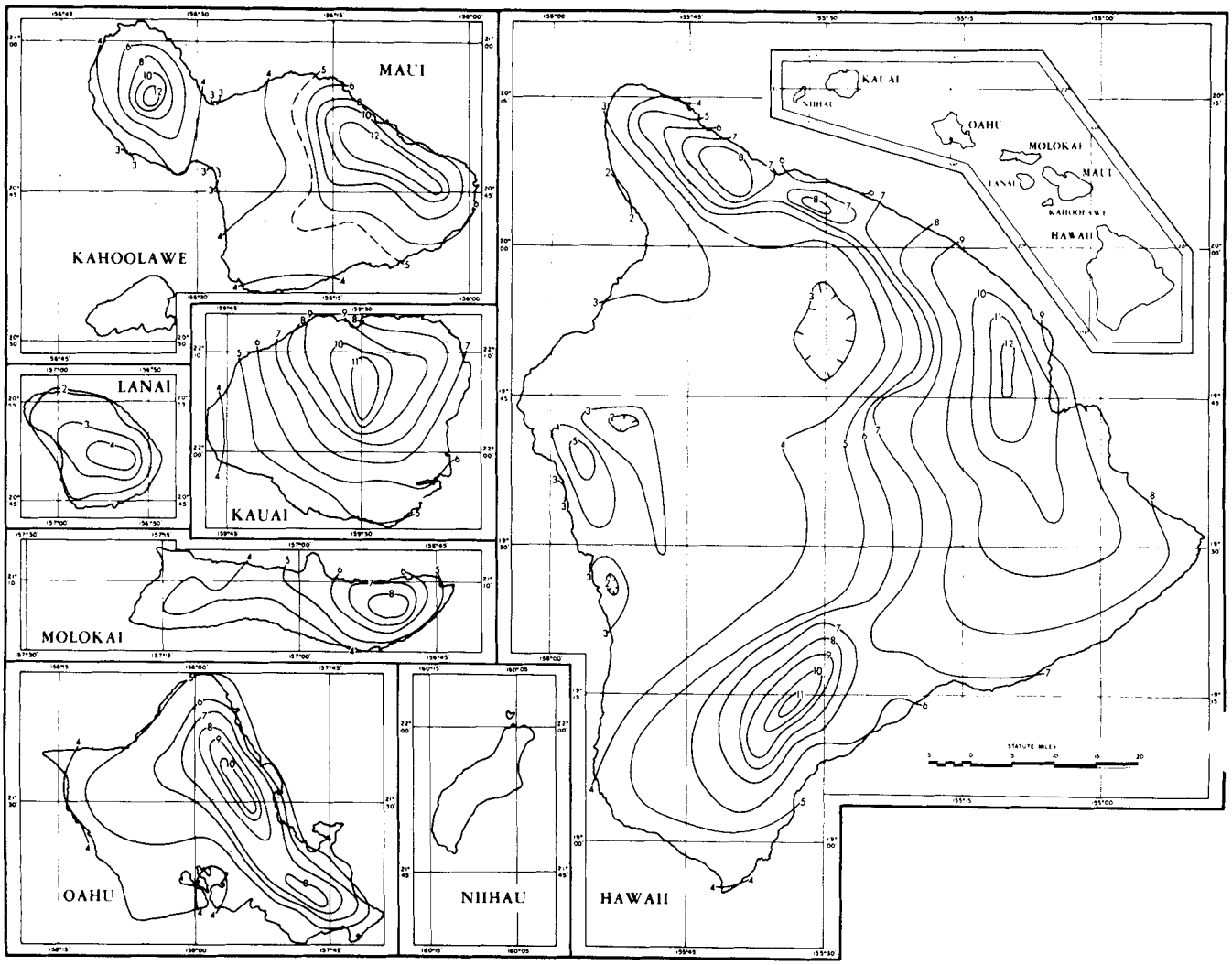
Prepared by U.S. Weather Bureau

Figure 2-13 —**Precipitation values for Alaska—100-year 24-hour rainfall (inches)**



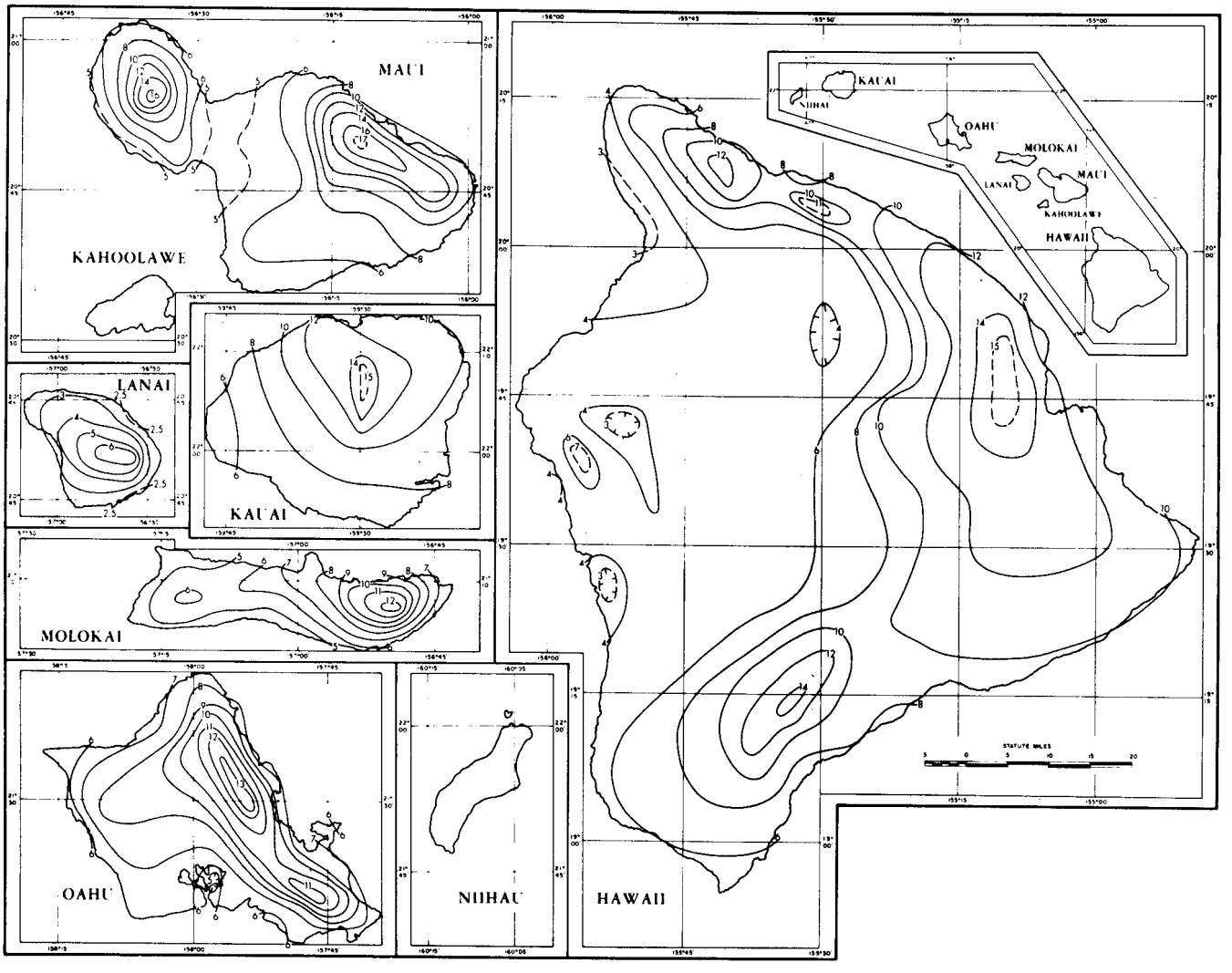
Prepared by U.S. Weather Bureau

Figure 2-14 —**Precipitation values for Hawaii—2-year 24-hour rainfall (inches)**



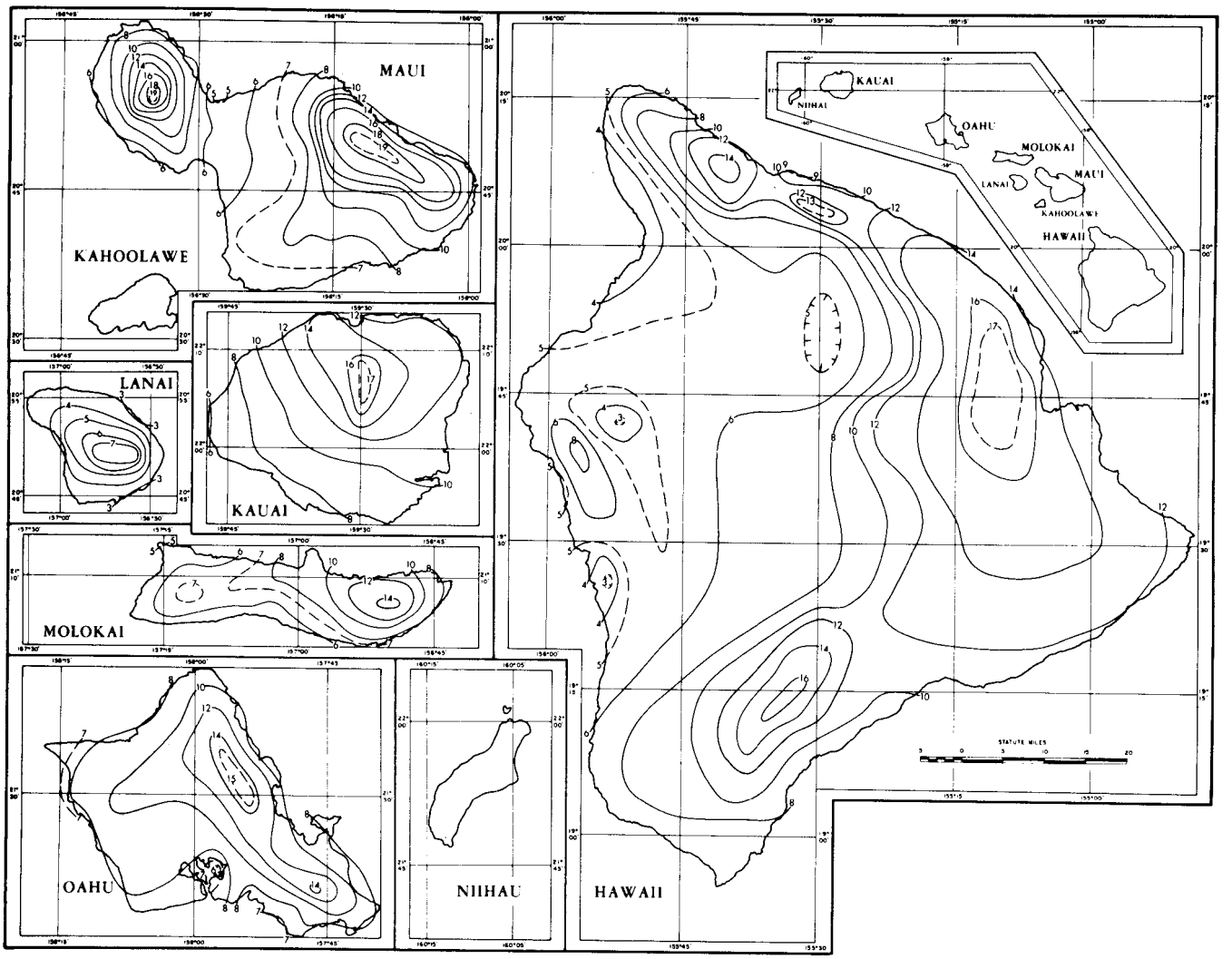
Prepared by U.S. Weather Bureau

Figure 2-15 —**Precipitation values for Hawaii—5-year 24-hour rainfall (inches)**



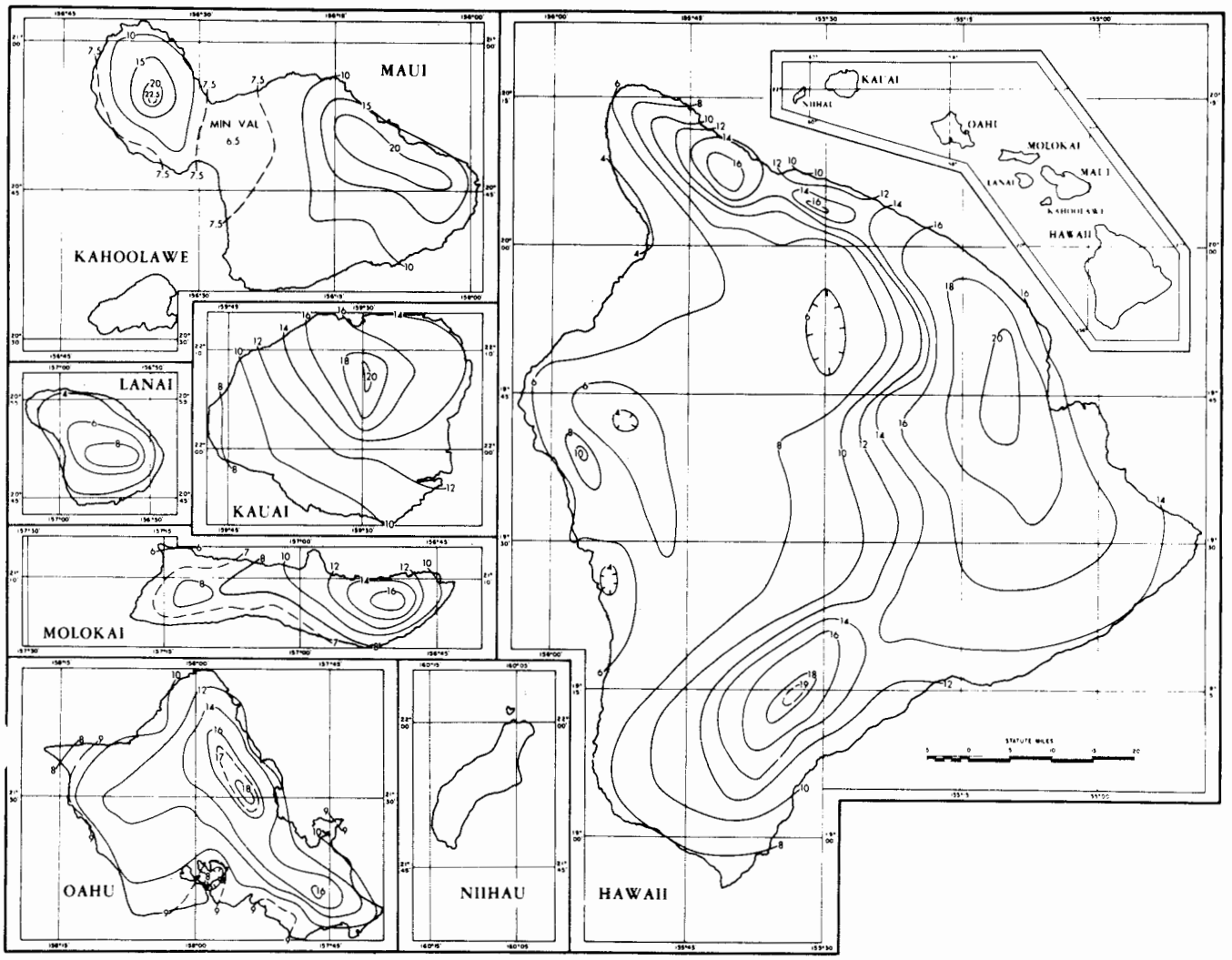
Prepared by U.S. Weather Bureau

Figure 2-16 —**Precipitation values for Hawaii—10-year 24-hour rainfall (inches)**



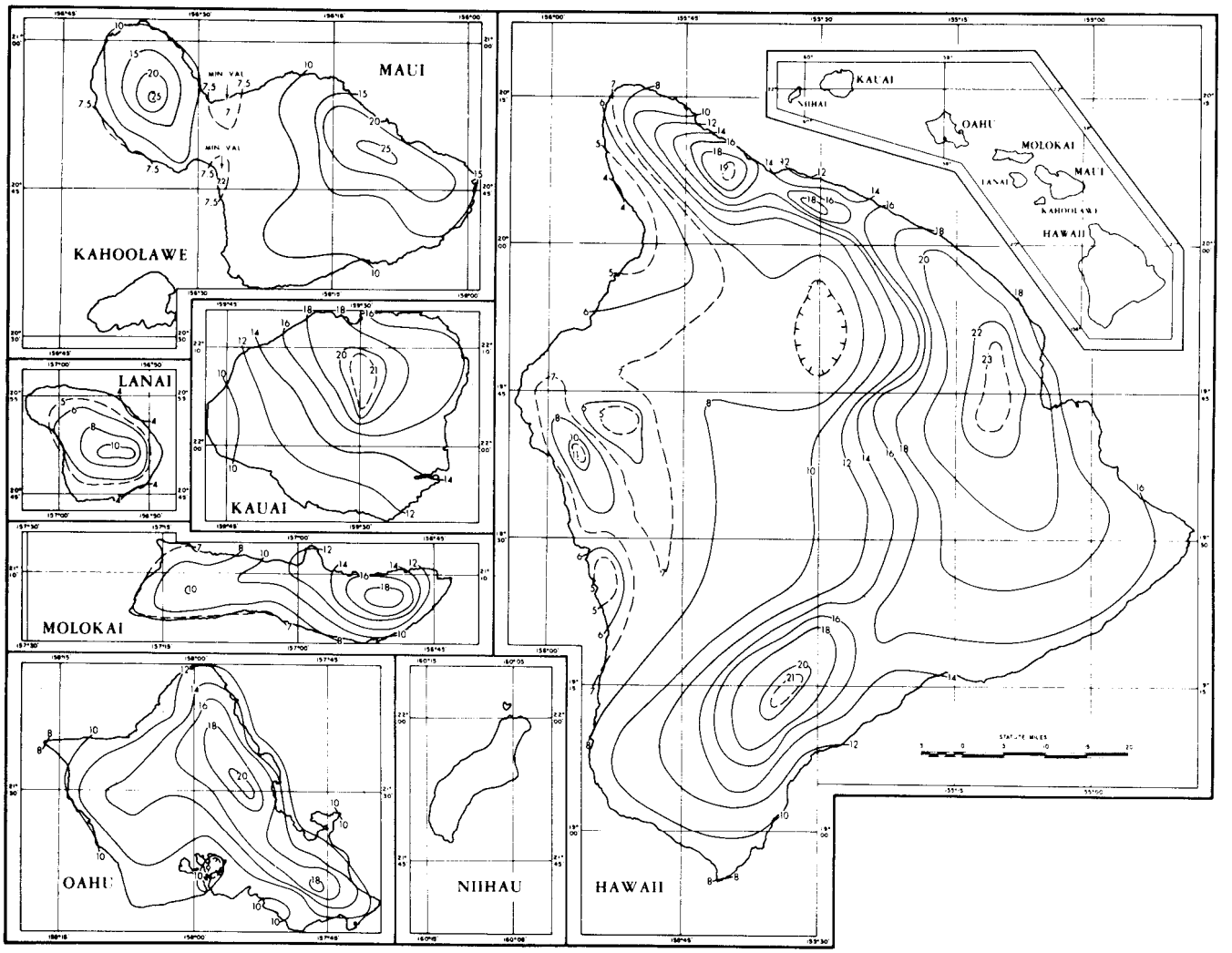
Prepared by U.S. Weather Bureau

Figure 2-17 —**Precipitation values for Hawaii—25-year 24-hour rainfall (inches)**



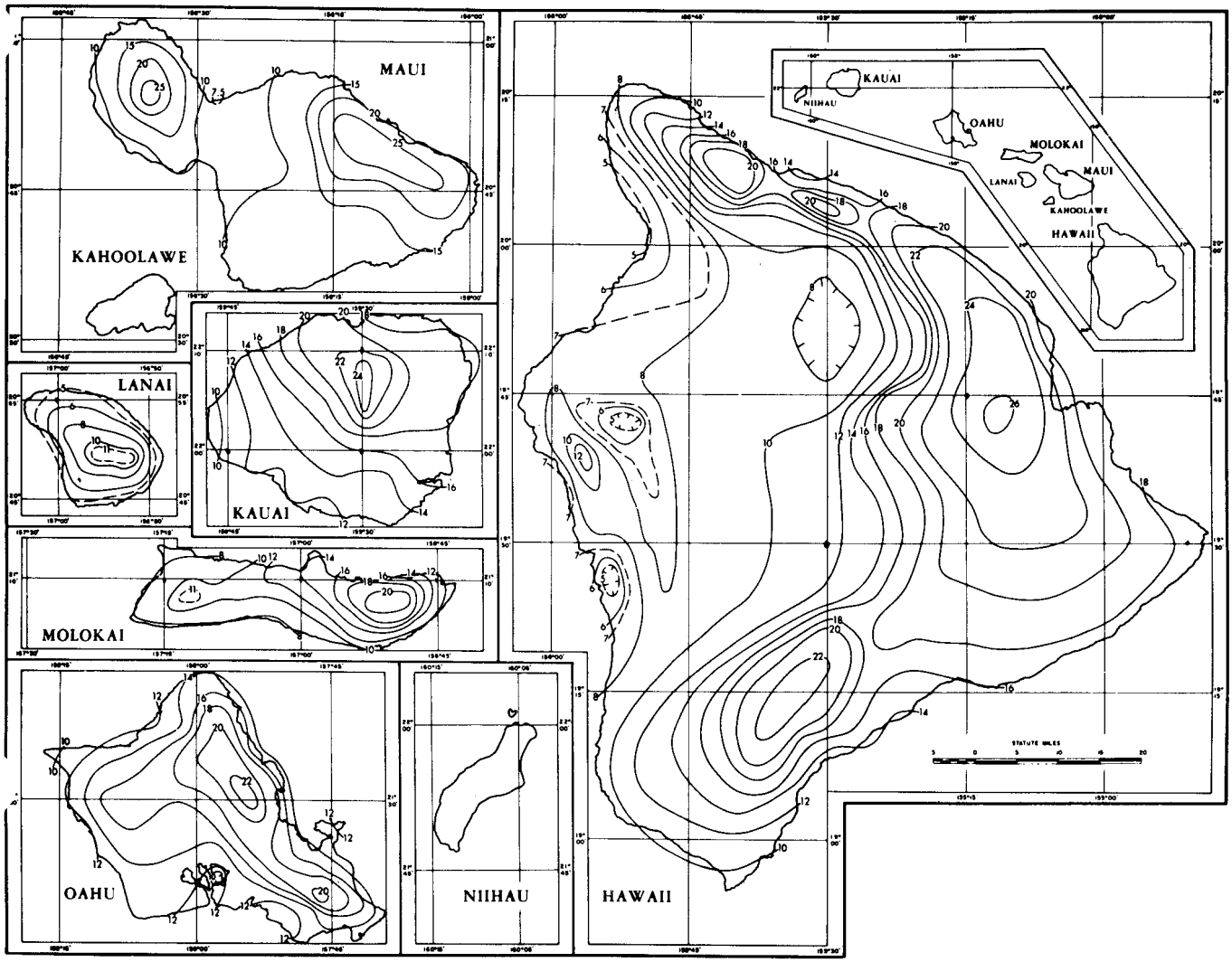
Prepared by U.S. Weather Bureau

Figure 2-18 —**Precipitation values for Hawaii—50-year 24-hour rainfall (inches)**



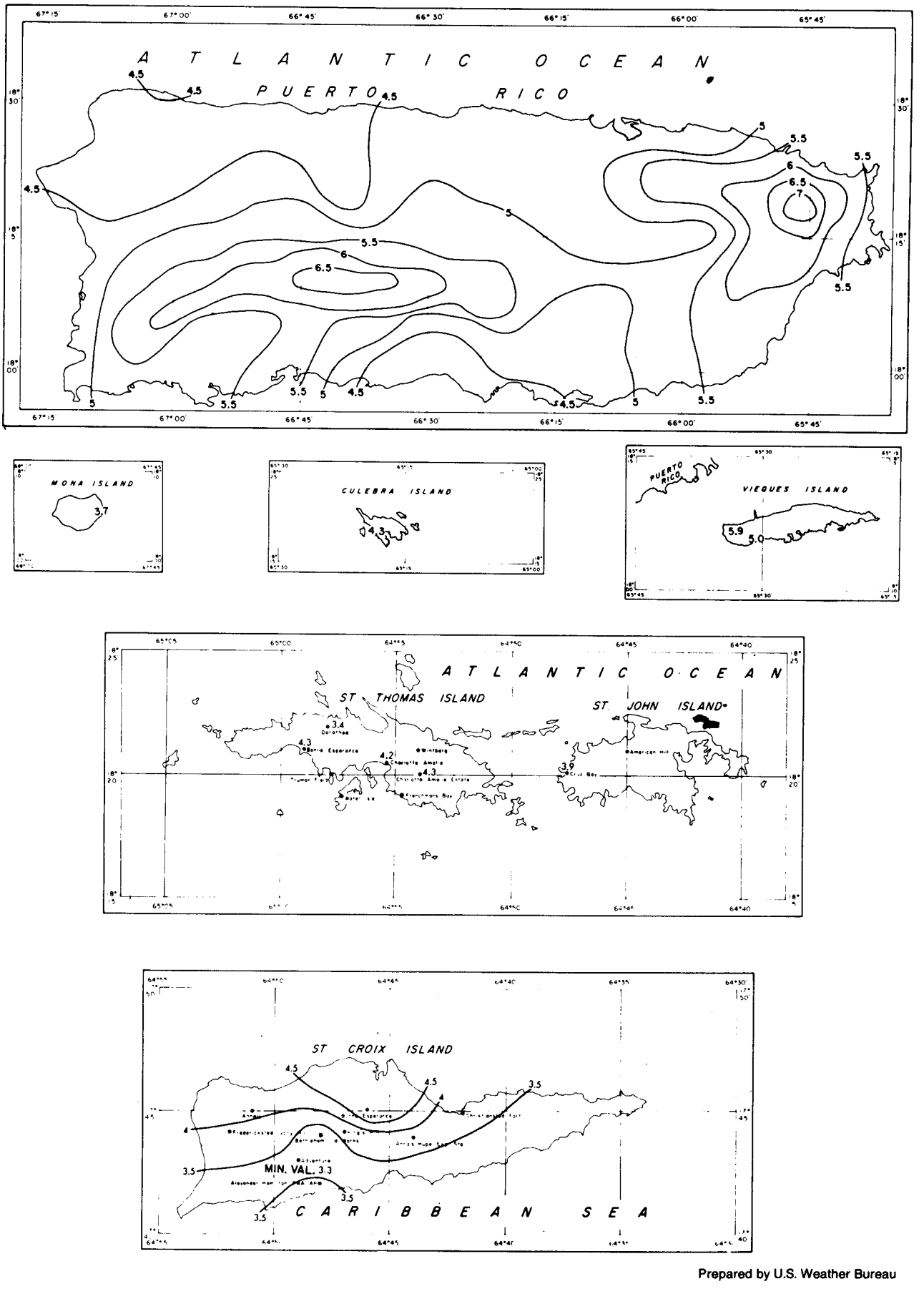
Prepared by U.S. Weather Bureau

Figure 2-19 —**Precipitation values for Hawaii—100-year 24-hour rainfall (inches)**



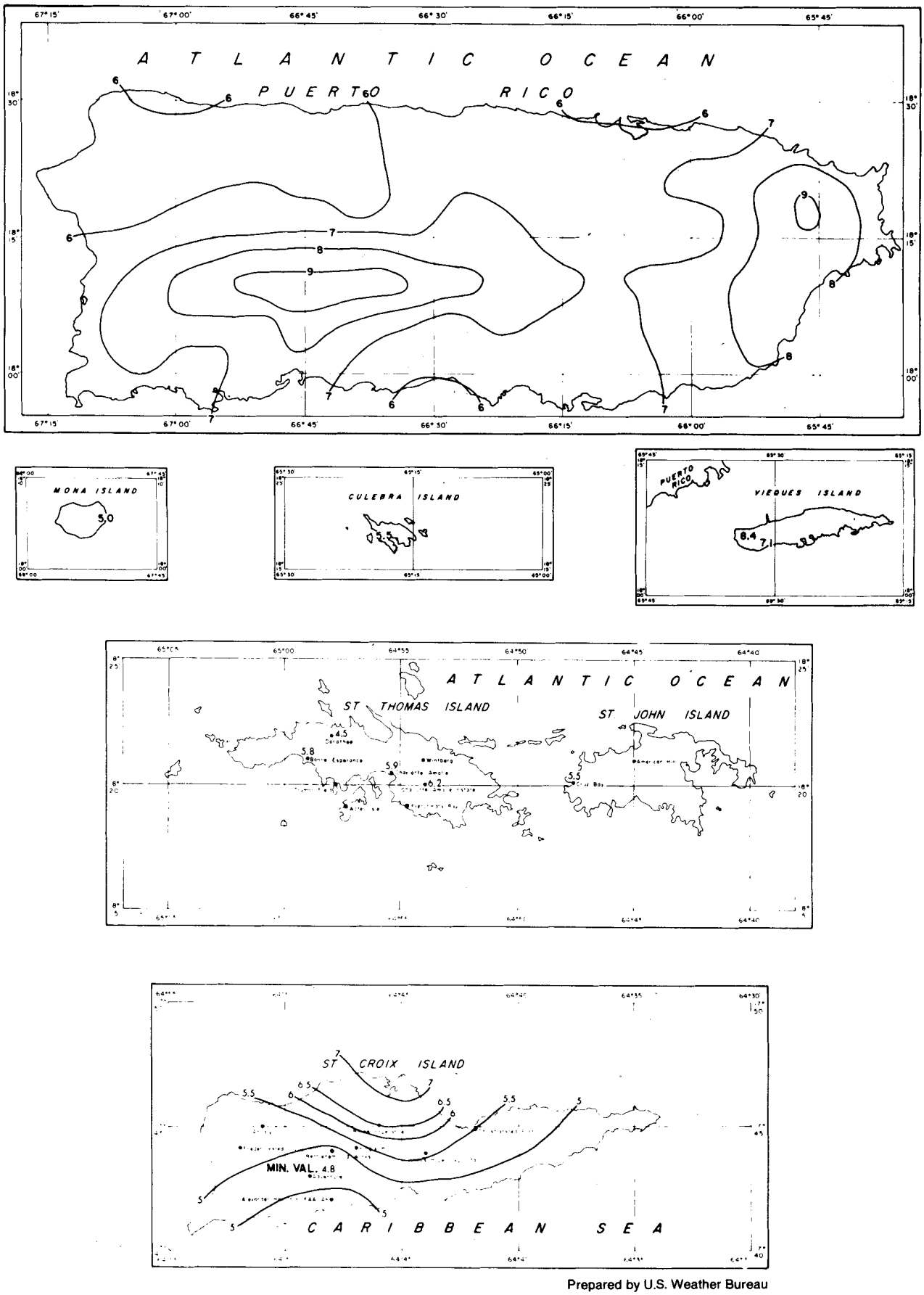
Prepared by U.S. Weather Bureau

Figure 2-20—**Precipitation values for Puerto Rico and the U.S. Virgin Islands—2-year 24-hour rainfall (inches)**



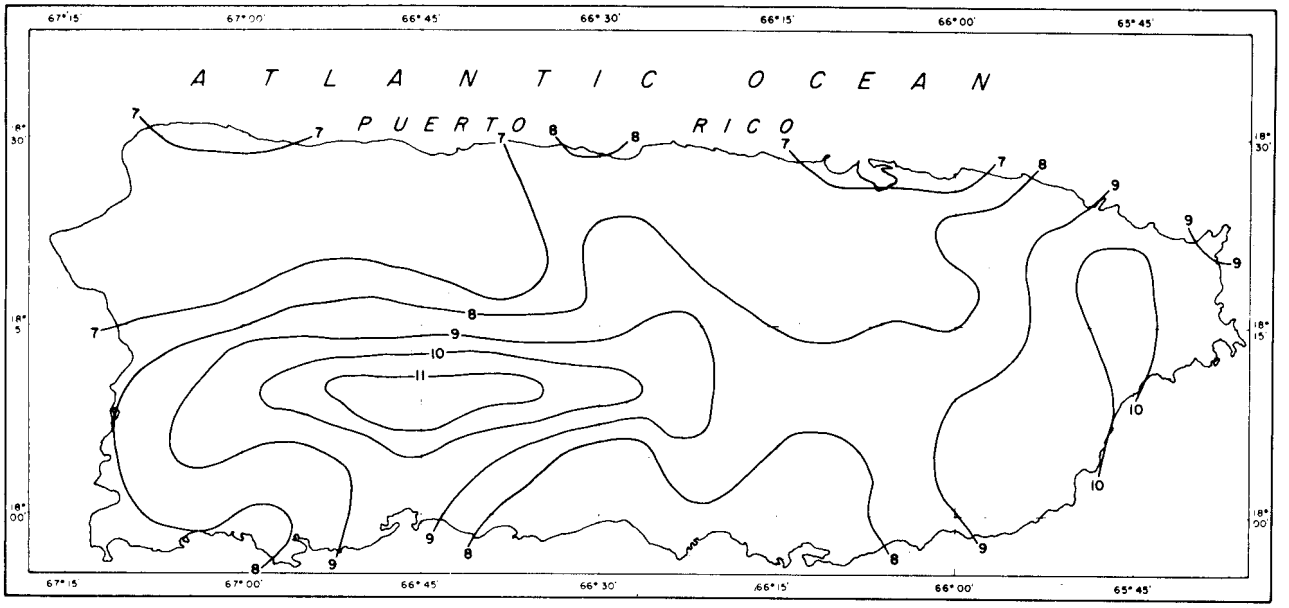
Prepared by U.S. Weather Bureau

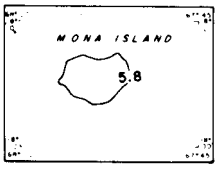
Figure 2-21—**Precipitation values for Puerto Rico and the U.S. Virgin Islands—5-year 24-hour rainfall (inches)**

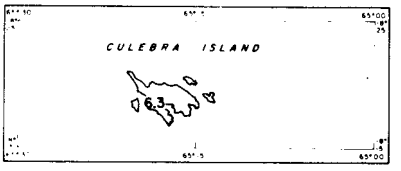


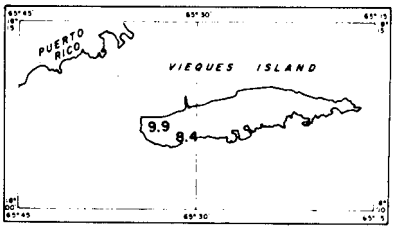
Prepared by U.S. Weather Bureau

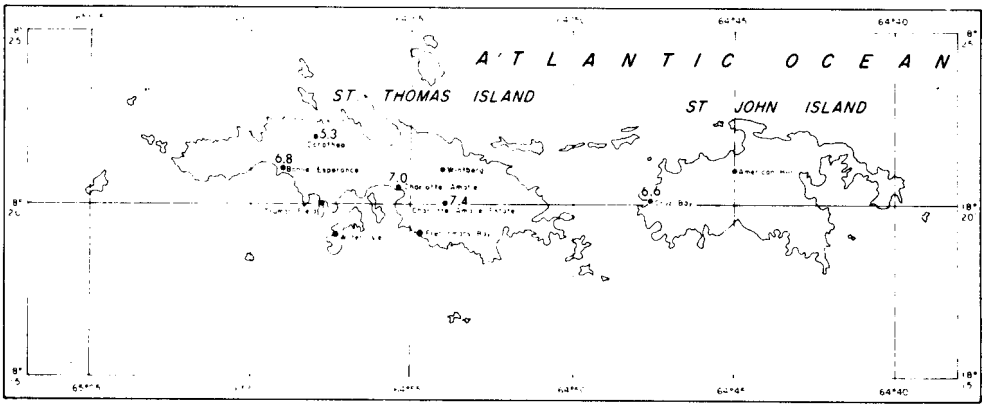
Figure 2-22 —**Precipitation values for Puerto Rico and the U.S. Virgin Islands—10-year 24-hour rainfall (inches)**

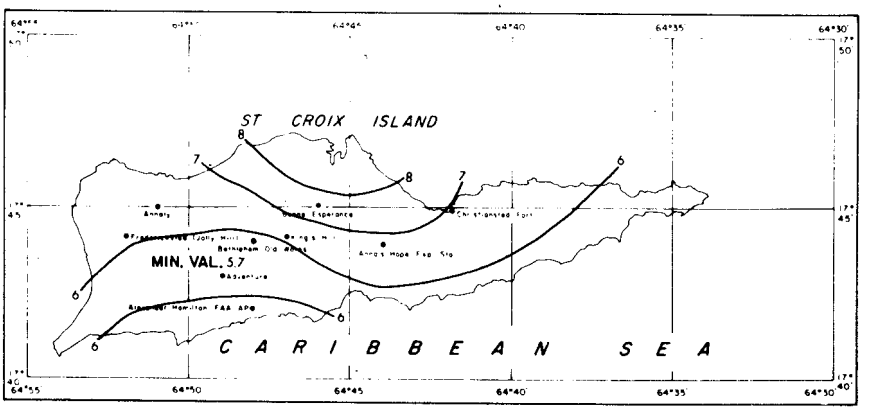






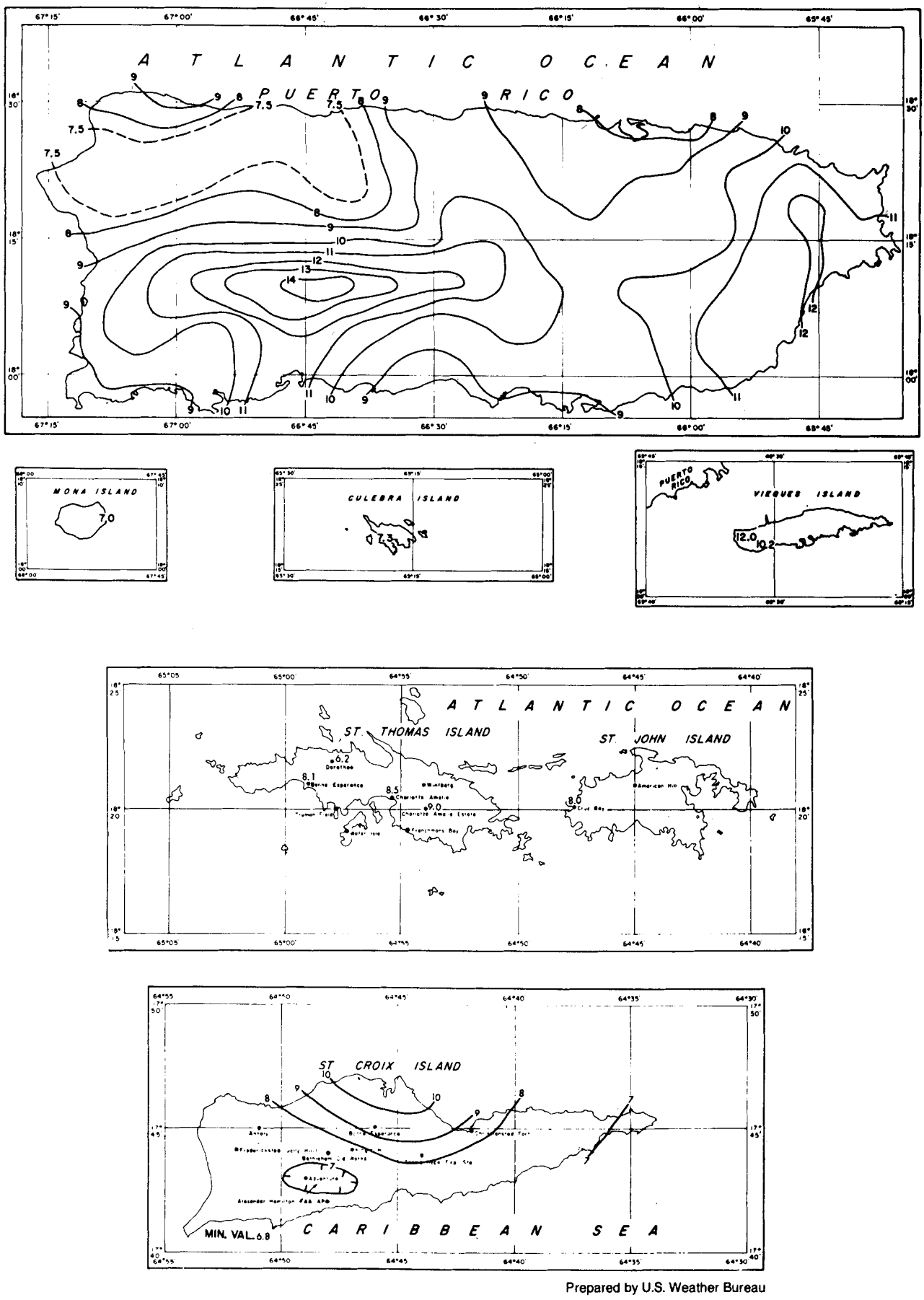






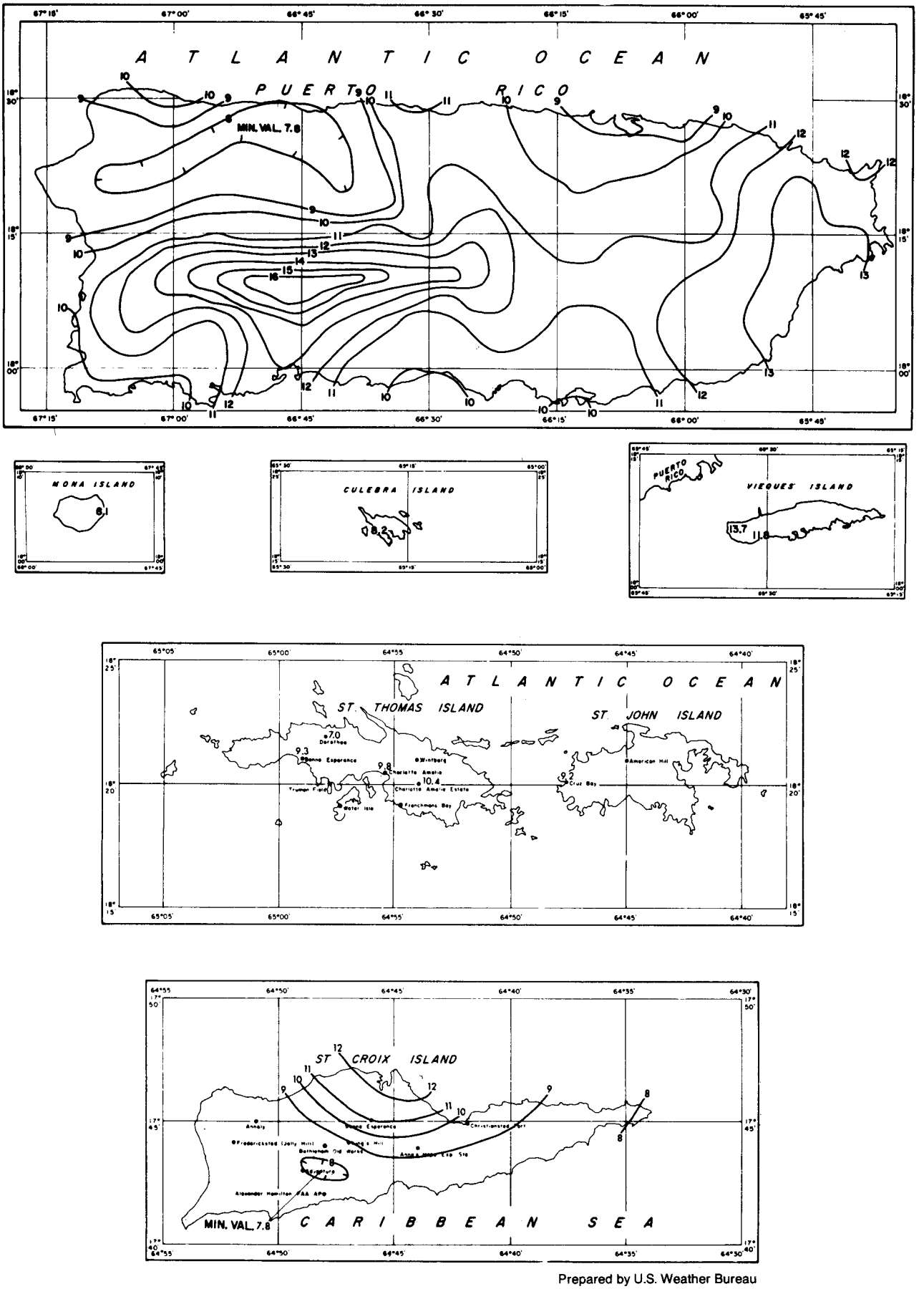
Prepared by U.S. Weather Bureau

Figure 2-23 —**Precipitation values for Puerto Rico and the U.S. Virgin Islands—25-year 24-hour rainfall (inches)**



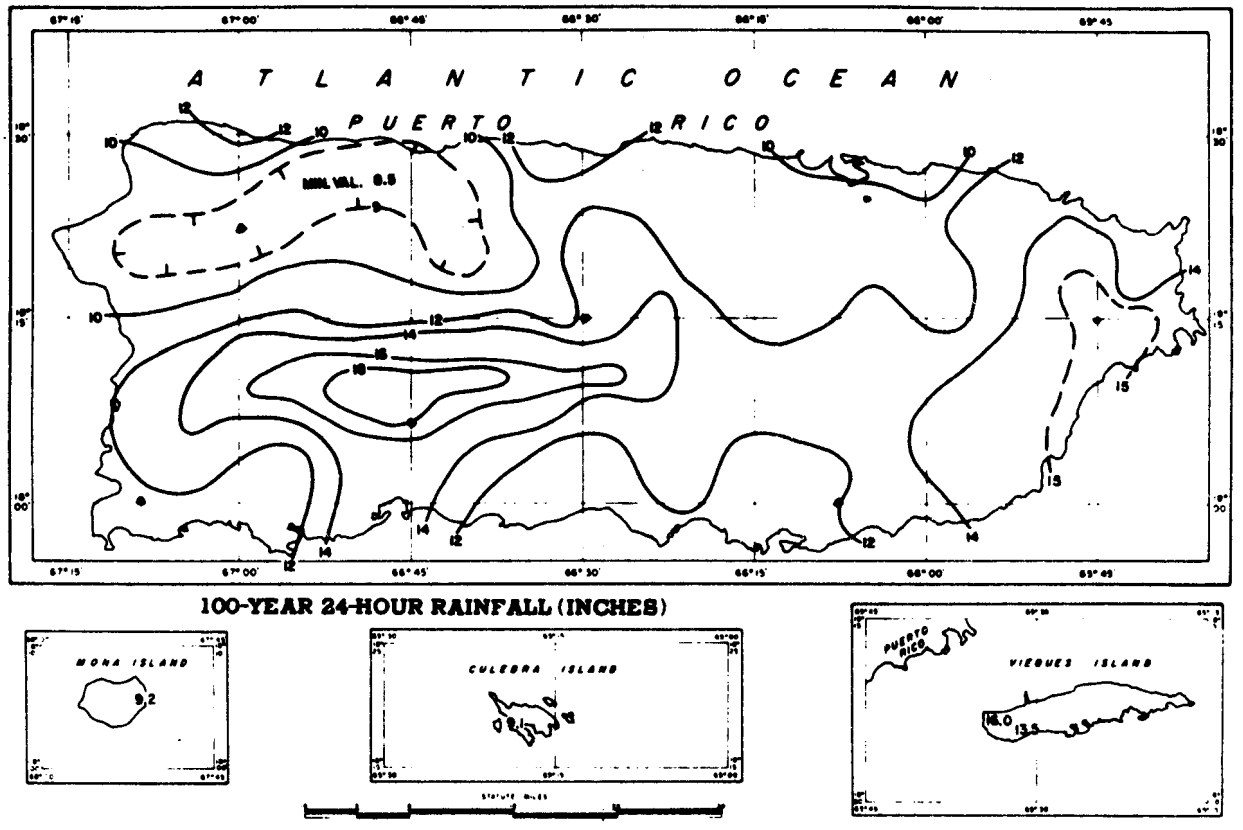
Prepared by U.S. Weather Bureau

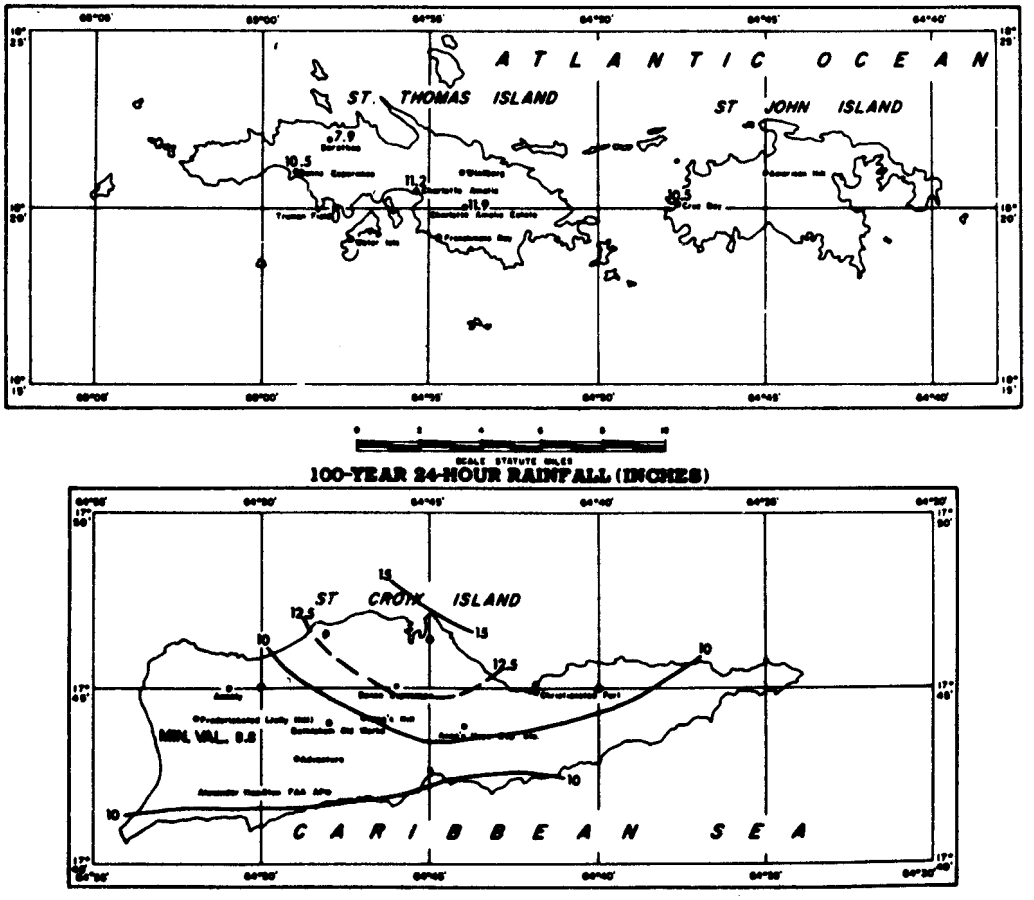
Figure 2-24 —**Precipitation values for Puerto Rico and the U.S. Virgin Islands—50-year 24-hour rainfall (inches)**



Prepared by U.S. Weather Bureau

Figure 2-25—**Precipitation values for Puerto Rico and the U.S. Virgin Islands—100-year 24-hour rainfall (inches)**





Prepared by U.S. Weather Bureau

Figure 2-26—**Solution for runoff equation**

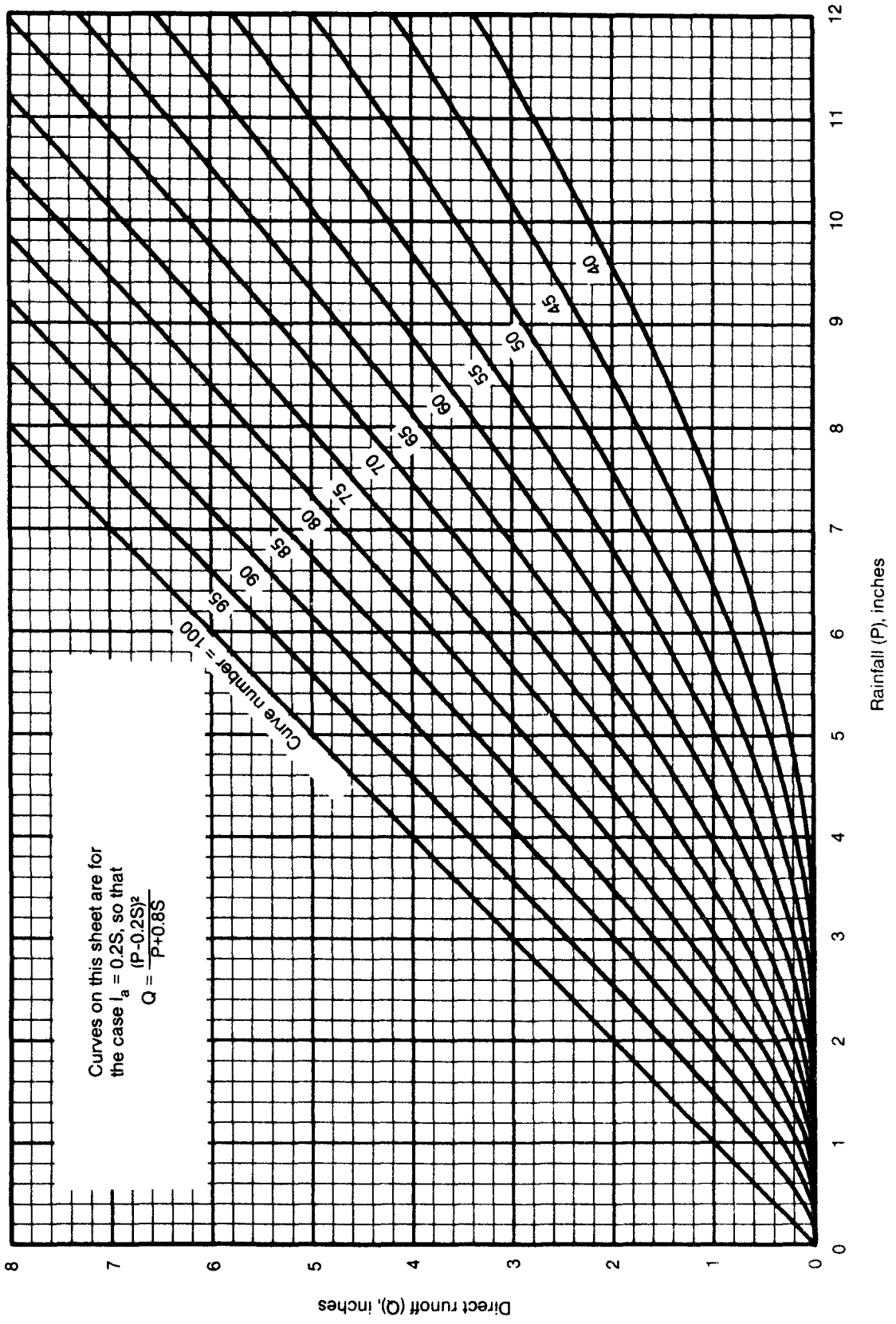


Figure 2-27.—**Time of concentration (T_c) nomograph**

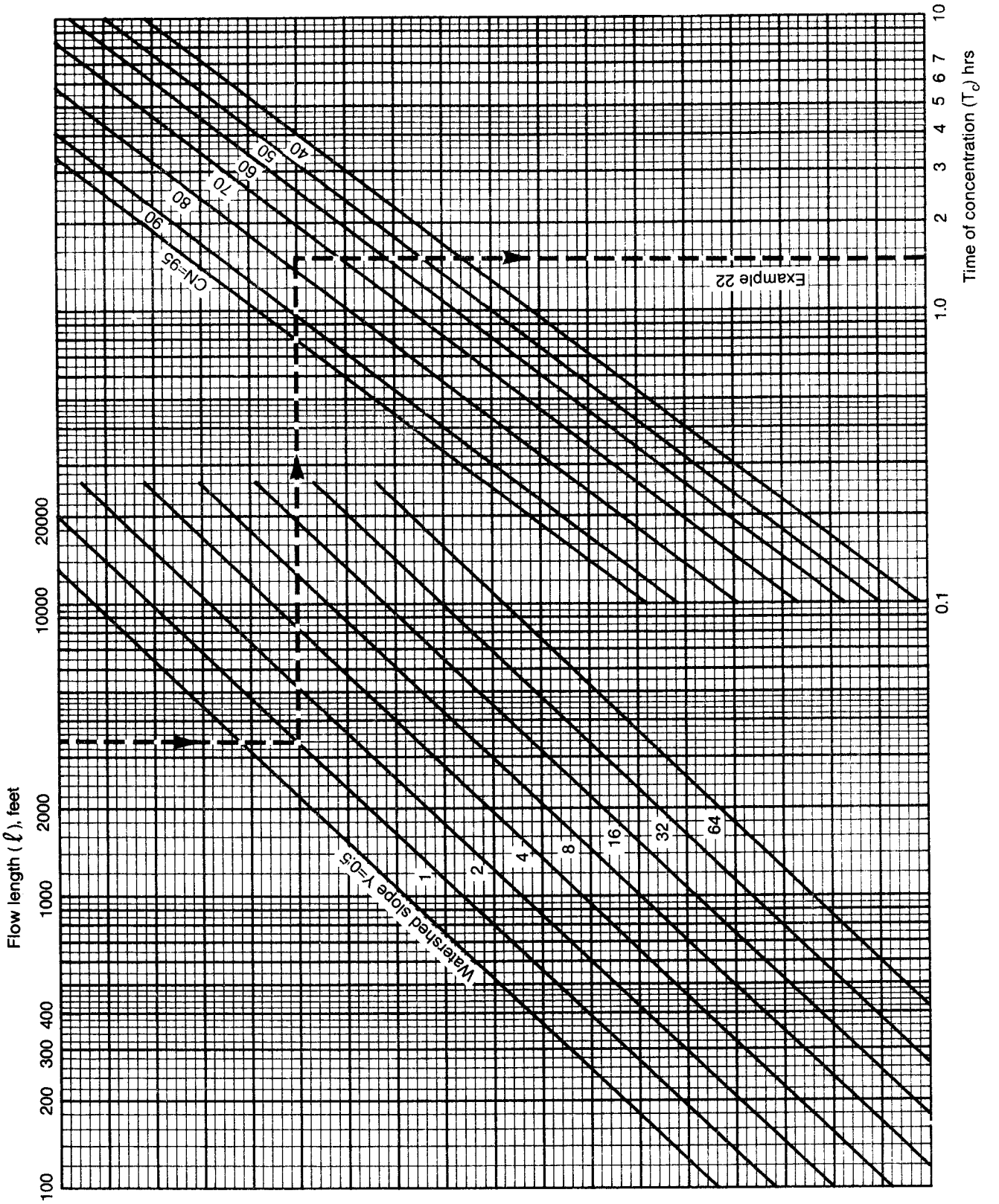


Table 2-1.—Hydrologic soil groups for U.S. soils

AABAB	D	ADAVEN	C	AMPEN	B	ALDING	D	ALSEA	B
AABERG	D	ADDICKS	D	AMRANKLIN	C	ALDINO	C	ALSPAUGH	C
AARON	C	ADDIELOU	B	AMRS	B	ALEDO	C	ALSTAD	C
AASTAD	B	ADE	B	AMTANUM	D	ALEGROS	C	ALSTONY	B
AAZDAHL	B	ADEK	B	AMTANUM, DRAINED	C	ALEKNAGIK	C	ALSUP	C
ABAC	D	ADEL	B	AMWAHNEE	B	ALEMEDA	C	ALTAMONT	D
ABAJO	C	ADEL, WET	D	AIEDNITO	C	ALEX	B	ALTAPEAK	B
ABALOBADIAH	B	ADELAIDE	D	AIDD	D	ALEXANDER	C	ALTAR	B
ABARCA	B	ADELANTO	B	AIKEN	B	ALEXANDRIA	C	ALTAVISTA	C
ABBAYE	B	ADELINO	B	AIKMAN	D	ALFIR	B	ALTDORF	D
ABBIE	B	ADELINO,	C	AIKMAN, STONY	C	ALFLACK	C	ALTHOUSE	B
ABBOTT	D	SALINE-ALKALI		AILEY	B	ALFORD	B	ALTICREST	B
ABBOTTSTOWN	C	ADELPHIA	B/C	AIMELIIA	B	ALGANSEE	B	ALTITA	C
ABCAL	D	ADEN	C	AINAKEA	B	ALGARROBO	A	ALTMAR	B
ABEGG	B	ADENA	C	AINSLEY	B	ALGERITA	B	ALTO	C
ABELA	B	ADGER	D	AINSWORTH	E	ALGIERS	C/D	ALTOGA	C
ABELL	B	ADIEUX	B	AIRMONT	C	ALGOA	C	ALTON	A
ABERDEEN	C	ADILIS	B	AIRPORT	D	ALGOMA	B/D	ALTOONA	C
ABERDNE	B	ADIN	D	AITS	B	ALHAMBRA	B	ALTUDA	D
ABERSITO	C	ADIOS	D	AJO	C	ALHARK	B	ALTURAS	C
ABERT	B	ADJUNTAS	C	AJOLITO	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
ABILENE	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	ADOBE	C	AKERCAN	B	ALKIRIDGE	C	ALVIN	B
ABO	C	ADOLPH	B/D	AKERUE	D	ALKO	D	ALVIRA	C
ABOR	D	ADOS	C	AKINA	B	ALLAGASH	B	ALVISO	D
ABORIGINE	D	ADRIAN	A/D	AKLEF	D	ALLAMORE	D	ALVODEST	D
ABOTEN	D	ADVOKAY	D	ALADDIN	B	ALLANTON	B/D	ALVOR	D
ABRA	B	AECET	C	ALADSHI	B	ALLANTON,	D	ALVOR, DRAINED	C
ABRAHAM	B	AENEAS	B	ALAE	A	DEPRESSIONAL		ALVOR, PROTECTED	C
ABRAZO	D	AFFEY	C	ALAELOA	B	ALLARD	B	ALWILDA	B
ABRAZO, GRAVELLY	C	AFLEY	B	ALAGA	A	ALLDOWN	B	ALYAN	C
ABREU	D	AFTADEN	D	ALAKAI	C	ALLEGHENY	B	ALZADA	D
ABRIGO	B	AFTON	C/D	ALAMA	B	ALLEMANDS	D	ALZOLA	C
ABSAROKEE	C	AGA	B	ALAMADITAS	C	ALLEN	B	AMADOR	D
ABSCOTA	A	AGAIPAH	D	ALAMANCE	B	ALLENDALE	B	AMAGON	D
ABSHER	D	AGAN	D	ALAMBIQUE	B	ALLENDORF	B	AMALIA	B
ABSTED	C	AGAR	B	ALAMO	D	ALLENS PARK	B	AMALU	D
ABSTED, FLOODED	D	AGASSIZ	D	ALAMOGORDO	B	ALLENS PARK, STONY	C	AMANA	B
ABSTON	C	AGATE	D	ALAMOSA	D	ALLENTINE	D	AMANDA	C
ACACIO	B	AGATHA	B	ALAMOSA, DRAINED	B	ALLENWOOD	B	AMARILLO	B
ACADEMY	C	AGAWAM	B	ALAMUCHEE	B	ALLEY	B	AMASA	B
ACADIA	D	AGENCY	C	ALANDS	B	ALLMANDS	D	AMASA, MODERATELY	C
ACANA	D	AGER	D	ALAPAHA	D	ALLIANCE	B	WET, SANDY	
ACANOO	C	AGFAYAN	D	ALAPAI	A	ALLIGATOR	D	SUBSTRATUM	
ACASCO	D	AGNAL	D	ALAZAN	B	ALLIS	D	AMBER	B
ACCELERATOR	B	AGNESTON	B	ALBAN	B	ALLISON	B	AMBIA	D
ACEITUNAS	B	AGNESTON, COBBLY	C	ALBANO	D	ALLKER	B	AMBOAT	C
ACEL	C	SUBSTRATUM		ALBANY	C	ALLOR	B	AMBOY	C
ACHIMIN	C	AGNESTON, CORBLY	C	ALBATON	D	ALLOUEZ	B	AMBRANT	B
ACKER	B	AGNESTON,	C	ALBEE	C	ALMAC	B	AMBRAW	B/C
ACKERMAN	A/D	NONGRAVELLY		ALBEMARLE	B	ALMANOR	B	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	B	AGORT	C	ALBION	B	ALMIRANTE	B	AMERICANOS	B
ACKMORE	B	AGRA	D	ALBRIGHTS	C	ALMO	D	AMERICUS	A
ACKWATER	D	AGUA	B	ALBURZ	C	ALMONT	D	AMERY	B
ACME	C	AGUA DULCE	B	ALBURZ, DRAINED	B	ALMOTA	C	AMES	C/D
ACO	B	AGUA FRIA	C	ALBUS	B	ALMY	B	AMESHA	B
ACOMA	C	AGUA FRIA, HIGH	B	ALCAN	D	ALNITE	D	AMESMONT	C
ACORD	C	RAINFALL		ALCESTER	B	ALO	D	AMHERST	D
ACOVE	C	AGUA FRIA, STONY	D	ALCOA	B	ALOHA	C	AMISTAD	D
ACREDALE	D	AGUADILLA	A	ALCONA	B	ALOMAX	D	AMITY	D
ACREE	C	AGUALT	B	ALCOT	A	ALONA	B	AMMON	B
ACRELANE	C	AGUEDA	B	ALCOVA	B	ALONSO	B	AMODAC	C
ACTON	B	AGUILARES	B	ALDA	C	ALOVAR	C	AMOLE	A
ACUFF	B	AGUILITA	B	ALDA, SALINE	B/D	ALPENA	A	AMOR	B
ACUNA	C	AGUIRRE	D	ALDAX	C	ALPHA	B	AMORUS	D
ACY	C	AGUSTIN	B	ALDEN	D	ALPIN	A	AMOS	C
ADA	C	AHART	C	ALDER	C	ALPON	B	AMOSTOWN	C
ADAIR	C	AHL	C	ALDERDALE	C	ALPOWA	B	AMPAD	C
ADAMS	A	AHLSTROM	D	ALDERMAND	B	ALRED	B	AMPHION	C
ADAMSON	B	AHMEEK	C	ALDERWOOD	C	ALROS	C	AMSDEN	B
ADAMSVILLE	C	AHOLT	D	ALDI	C	ALS	A	AMSTERDAM	B
ADATON	D	AHPAH	B	ALDINE	D	ALSCO	B	AMTOFT	D

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

Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

AMWELL	C	ANSELMO, BEDROCK SUBSTRATUM	A	ARCH	B	ARMYDRAIN	C	ASSUMPTION	B
AMY	D			ARCHABAL	B	ARNEGARD	B	ASTA	B
ANACAPA	B	ANSGAR	B/D	ARCHBOLD	A	ARNESS	D	ASTATULA	A
ANACOCO	D	ANSPING	B	ARCHER	C	ARNHEIM	D	ASTOR	B/D
ANACONDA	B	ANT FLAT	C	ARCHERDALE	C	ARNO	D	ASTOR, FLOODED	D
ANAHEIM	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	ANTIGO	B	ARCO	C	ARRADA	D	ATCO	B
ANAVERDE	B	ANTILON	C	ARCO, DRAINED	B	ARRASTRE	B	ATENCIO	B
ANAWALT	D	ANTIOCH	D	ARCOLA	C	ARREDONDO	A	ATEPIC	D
ANCHO	B	ANTLER	C	ARD	C	ARRIBA	C	ATHELWOLD	B
ANCHO, SALINE	C	ANTOINE	B	ARDENMONT	B	ARRINGTON	B	ATHENA	B
ANCHOR POINT	D	ANTONITO	C	ARDENVOIR	B	ARRIOLA	D	ATHERTON	B/D
ANCHORAGE	A	ANTOSA	D	ARDEP	B	ARRITOLA	D	ATHOL	B
ANCLOTE	B/D	ANTROBUS	B	ARDEP, WET	C	ARROLIME	C	ATKINS	D
ANCLOTE, DEPRESSIONAL	D	ANTWERP	C	ARDILLA	C	ARRON	D	ATKINSON	B
		ANTY	B	ARDIVEY	B	ARROWHEAD	C	ATLAS	D
ANCLOTE, FREQUENTLY FLOODED	D	ANUNDE	B	ARDNAS	B	ARROYADA	D	ATLEE	C
		ANVIK	B	ARDTOO	B	ARROYO SECO	B	ATLOW	D
		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	B
ANDERS	C	APALACHEE	D	ARENALES	A	ARTNOC	B	ATRAVESADA	D
ANDERSON	B	APALO	B	ARENDTSVILLE	B	ARTOIS	C	ATRING	B
ANDOK	B	APAREJO	B	ARENOSA	A	ARUJO	B	ATRYPA	D
ANDOVER	D	APELDORN	D	ARENZVILLE	B	ARUNDEL	C	ATSION	C/D
ANDRADA	D	APEX	B	ARGALT	D	ARVA	D	ATSION, TIDE FLOODED	D
ANDREESON	C	APISHAPA	D	ARGENT	D	ARVADA	D		
ANDREGG	B	APISON	B	ARGENTA	C	ARVANA	C	ATTELLA	D
ANDRES	B	APMAT	B	ARGONAUT	D	ARVESON	B/D	ATTER	A
ANDREWS	C	APMAY	D	ARGORA	B	ARVILLA	A	ATTERBERRY	B
ANDRUSIA	A	APOLLO	B	ARGYLE	B	ARVIN	B	ATTEWAN	B
ANDRY	D	APOPKA	A	ARIEL	C	ARZO	D	ATTEWAN, WET	D
ANDYS	B	APPANOOSE	D	ARIKARA	B	ASA	B	ATTICA	B
ANED	D	APPERSON	C	ARIMO	B	ASABEAN	B	ATTOYAC	B
ANELA	B	APPIAN	B	ARIPEKA	C	ASBILL	D	ATWATER	B
ANETH	B	APPIAN, SALINE-ALKALI	C	ARIPINE	A	ASCALON	B	ATWELL	D
ANETH, DRY	A			ARIS	D	ASCAR	C	ATWOOD	B
ANGELICA	B/D	APPIAN, WET	C	ARISPE	C	ASCHOFF	B	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	AUBBEENAUBBEE	B
ANGIE	D	APPLEGATE	C	ARKAQUA	C	ASHCROFT	B	AUBERRY	B
ANGLE	A	APPLETON	C	ARKONA	B	ASHDALE	B	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	C	ASHER	C	AUFCO	D
ANGOSTURA	B	APTAKISIC	B	ARLAND	B	ASHFORD	D	AUGGIE	B
ANHALT	D	APTOS	C	ARLE	C	ASHFORK	D	AUGSBURG	B/D
ANIAK	D	AQUILLA	A	ARLINGTON	C	ASHGROVE	D	AUGUSTA	C
ANIMAS	C	AQUINAS	C	ARLINGTON, THICK SOLUM	B	ASHHURST	C	AUGUSTINE	B
ANINTO	D	ARABRAB	D			ASHIPPUN	C	AULD	D
ANITA	D	ARADA	B	ARLO	B	ASHKUM	B/D	AURA	B
ANKENY	B	ARAGON	C	ARLOVAL	A	ASHLAR	B	AURELIE	D
ANKLAM	D	ARAMBURU	C	ARMAGH	D	ASHLEY	B	AURELIUS	B/D
ANKONA	D	ARANSAS	D	ARMCO	C	ASHLO	B	AURORA	C
ANNABELLA	B	ARAPAHOE	B/D	ARMELLS	B	ASHMED	B	AUSMUS	D
ANNANDALE	C	ARAPIEN	C	ARMENDARIS	C	ASHMUN	D	AUSTIN	C
ANNAW	B	ARARAT	B	ARMENIA	D	ASHOLLER	D	AUSTINVILLE	B
ANNEMAINE	C	ARAT	D	ARMESA	B	ASHPORT	B	AUSTWELL	D
ANNIS	C	ARAVAIPA	C	ARMESPAN	B	ASHTON	B	AUT	C
ANNIS, SALINE	B	ARAVE	D	ARMIESBURG	B	ASHUE	B	AUTOMBA	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	AUZQUI	B
ANNONA	D	ARBOLES	C	ARMITAGE	C	ASOLT	D	AVA	C
ANOCON	C	ARBONE	B	ARMO	B	ASOTIN	C	AVALON	B
ANOKA	B	ARBOR	B	ARMOINE	D	ASPARAS	B	AVANT	B
ANONES	C	ARBUCKLE	B	ARMONA	C	ASPEN	B	AVAR	D
ANOWELL	D	ARBUCKLE, WET	C	ARMOUR	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

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

AVON	C	BALDFIELD	C	BARDLEY	C	BATESON	B	BEAVERTON	B		
AVONBURG	D	BALDHILL	B	BARELA	C	BATESVILLE	C	BECKER	B		
AVONDA	B	BALDMOUNTAIN	B	BARFIELD	D	BATH	C	BECKET	C		
AVONDALE	B	BALDOCK	D	BARFUSS	B	BATTERSON	D	BECKLEY	B		
AVONVILLE	B	BALDOCK, GRAVELLY	C	BARGE	C	BATTLE CREEK	C	BECKMAN	D		
AVTABLE	D	SUBSTRATUM,		BARGER	C	BATTLEMENT	B	BECKS	C		
AWBRIG	D	DRAINED		BARIO	B	BATZA	D	BECKTON	D		
AXIS	D	BALDOCK, SALINE	C	BARISHMAN	C	BAUDETTE	B	BECKTON, WELL	C		
AXTELL	D	BALDOCK, SALINE	C	BARKCAMP	B	BAUER	C	DRAINED			
AYAR	D	BALDOCK, DRAINED	C	BARKELEW	B	BAUMAN	C	BECKVILLE	B		
AYCOCK	B	BALDWIN	D	BARKERVILLE	C	BAUMGARD	B	BECKWITH	D		
AYDELOTTE	D	BALDY	B	BARKLEY	C	BAUSCHER	B	BECKWOURTH	C		
AYERSVILLE	B	BALE	B	BARKOF	D	BAUX	B	BECRAFT	B		
AYLMER	A	BALE, WET	D	BARLEYFIELD	B	BAUXSON	B	BECREEK	B		
AYNOR	B/D	BALLAHACK	D	BARLING	C	BAXENDALE	B	BEDELL	B		
AYON	B	BALLARD	B	BARLOW	B	BAXTER	B	BEDEN	D		
AYOUB	C	BALLER	D	BARNABE	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	BAYBORO	D	BEDNER	C		
AYSEES	B	BALLY	C	BARNESTON	B	BAYERTON	C	BEDSTEAD	C		
AZAAR	C	BALM	D	BARNESTON,	A	BAYFIELD	C	BEDWYR	D		
AZELTINE	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	B	BEECHER	C		
AZTEC, HIGH	C	BALMLAKE	B	BARNHOT	D	BAYMEADE	A	BEECHGROVE	B		
RAINFALL		BALMORHEA	C	BARNSDALL	B	BAYOU	D	BEECHWOOD	C		
AZULE	C	BALON	B	BARNSTABLE	B	BAYOUDAN	D	BEEK	C		
AZWELL	C	BALSORA	B	BARNUM	B	BAYSHORE	D	BEEKMAN	C		
BAAHISH	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	BEEMONT	C		
BABELTHUAP	B	BAMAC	A	BARRADA	D	BAYTOWN	B	BEENOM	D		
BACA	B	BAMBER	B	BARRE	D	BAYUCOS	D	BEESKOVE	B		
BACA, FLOODED	C	BAMOS	C	BARRETT	D	BAYVI	D	BEETVILLE	B		
BACH	B/D	BAMTUSH	B	BARRIER	D	BAYVIEW	D	BEEZEE	B		
BACHELOR	B	BANADERU	D	BARRINGTON	B	BAYWOOD	A	BEFAR	D		
BACHO	D	BANAT	B	BARRON	B	BAZETTE	C	BEGAY	B		
BACHUS	C	BANBURY	D	BARRONETT	B/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	D		
BACLIFF	D	BANCROFT	B	BARSHAAD	D	BEADLE	C	BEIGLE	B		
BACOBI	C	BANCY	D	BART	B	BEALAND	B	BEIRMAN	D		
BACONA	B	BANDAG	B	BARTINE	C	BEALES	B	BEISIGL	A		
BADAXE	B	BANDERA	B	BARTLE	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	BARTOME	D	BEANFLAT	C	BELATE	B		
BADGERTON	B	BANGO	B	BARTON	B	BEANLAKE	B	BELCHER	D		
BADIN	C	BANGOR	B	BARTONFLAT	B	BEANO	D	BELDEN	C		
BADITO	C	BANGSTON	A	BARVON	B	BEAR BASIN	B	BELDING	B		
BADO	D	BANIDA	D	BARX	B	BEAR CREEK	B	BELEN	D		
BADUS	C/D	BANKARD	A	BASCAL	B	BEAR LAKE	D	BELFAST	B		
BADWATER	B	BANKHEAD	B	BASCO	C	BEAR PRAIRIE	B	BELFIELD	C		
BAGARD	B	BANKS	A	BASCOM	B	BEARDALL	C	BELFORE	B		
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	D		
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	BEARPAW	C	BELK	D		
BAILE	D	BANTRY	A/D	BASIN	C	BEARSKIN	D	BELKNAP	C		
BAILEGAP	B	BAPOS	D	BASINGER	B/D	BEARSPRING	B	BELLAVISTA	C		
BAILEYCREEK	C	BARABOO	B	BASINGER,	D	BEARTRAP	B	BELLE	B		
BAILING	C	BARAGA	C	DEPRESSIONAL		BEARVILLE	C	BELLECHESTER	A		
BAINVILLE	C	BARANA	B	BASINGER, FLOODED	D	BEARWALLOW	C	BELLEHELEN	D		
BAIRD HOLLOW	C	BARATARI	A/D	BASKET	B	BEASLEY	C	BELLENMINE	D		
BAIRD HOLLOW,	D	BARBAROSA	D	BASSEL	B	BEASON	C	BELLEVILLE	B/D		
EXTREMELY COBBLY		BARBARY	D	BASSETT	B	BEATRICE	D	BELLEVILLE, PONDED	D		
BAIRD HOLLOW,	B	BARBERT	D	BASSFIELD	B	BEAUCOUP	B/D	BELLEVUE	B		
GRAVELLY		BARBOUR	B	BASTIAN	C	BEAUFORD	D	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	D		
BALAAM	B	BARCO	B	BATAN	B	BEAUVAIS	B	BELLPINE	C		
BALCOM	B	BARCUS	A	BATAVIA	B	BEAVERCREEK	B	BELLWOOD	D		
BALD	C	BARD	D	BATEMAN	B	BEAVERDAM	C	BELMEAR	D		
BALDER	D	BARDEN	C	BATES	B	BEAVERELL	B	BELMILL	B		

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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	BROMIDE	B
BOLLING	C	BORNSTEDT	C	BRADDOCK	B	BREWTON	C	BROMO	B
BOLSA	C	BORO	D	BRADEN	B	BRIBUTTE	D	BRONAUGH	B
BOLTON	B	BOROBEY	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	BRADSHAW	B	BRICO	C	BRONELL	B
BOMBAY	B	BORTH	C	BRADSON	B	BRIDGE	C	BRONSON	B
BOMOSEEN	C	BORUP	B/D	BRADWAY	D	BRIDGECREEK	C	BRONTE	C
BON	B	BORVANT	D	BRADY	B	BRIDGEHAMPTON	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	BRAGG	C	BRIDGESON	D	BROOKLYN	C/D
BONCLAIR	B	BOSLER	B	BRAHAM	B	BRIDGESON, DRAINED	C	BROOKMAN	D
BOND	D	BOSO	D	BRAILSFORD	C	BRIDGET	B	BROOKSHIRE	C
BONDFARM	D	BOSQUE	B	BRAINERD	C	BRIDGEWATER	B	BROOKSIDE	C
BONDMAN	D	BOSSBURG	D	BRALLIER	D	BRIEDWELL	B	BROOKSTON	B/D
BONDRANCH	D	BOSSBURG, DRAINED	C	BRAM	C	BRIEF	B	BROOKSTON, STONY	D
BONDUEL	C	BOSTON	C	BRAMARD	B	BRIER	D	BROOKSVILLE	D
BONE	D	BOSTRUM	D	BRAMLETT	D	BRIGGS	A	BROOME	B
BONEEK	B	BOSTWICK	B	BRAMWELL	C	BRIGGSDALE	C	BROPHY	A/D
BONEYARD	C	BOSVILLE	D	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	BRANDENBURG	A	BRILEY	B	BROUGHTON	D
BONHAM	C	BOTHWELL	B	BRANDON	B	BRILL	B	BROWARD	C
BONIFAY	A	BOTHWI	C	BRANDYWINE	C	BRILLIANT	B	BROWER	B
BONILLA	B	BOTON	B	BRANFORD	B	BRIMFIELD	C/D	BROWNBEAR	C
BONITA	D	BOTTINEAU	C	BRANHAM	C	BRIMLEY	B	BROWNDELL	D
BONJEA	D	BOTTLE	C	BRANSCOMB	B	BRIMSTONE	D	BROWNELL	B
BONN	D	BOTTLEROCK	C	BRANTFORD	B	BRINEGAR	B	BROWNFIELD	A
BONNEAU	A	BOULDER	B	BRANTLEY	C	BRINGMEE	B	BROWNLEE	B
BONNELL	C	BOULDER LAKE	D	BRANYON	D	BRINKER	C	BROWNRIGG	D
BONNER	B	BOULDER POINT	B	BRASHEAR	C	BRINKERT	C	BROWNSCOMBE	C
BONNERDALE	B	BOULDERCREEK	B	BRASSFIELD	B	BRINKERTON	D	BROWNSCREEK	B
BONNET	B	BOULDIN	B	BRATTON	B	BRINNUM	D	BROWNSDALE	C
BONNEVILLE	A	BOULFLAT	C	BRAUN	C	BRINNUM, DRAINED	C	BROWNSTO	B
BONNICK	A	BOUNCER	D	BRAVANE	D	BRIONES	B	BROWNSVILLE	C
BONNIE	C/D	BOUNDARY	B	BRAWLEY	D	BRIOS	A	BROWNTON	C/D
BONNIE, PONDED	C	BOURBON	B	BRAXTON	C	BRISBANE	B	BROXON	B
BONNYDOON	D	BOURNE	C	BRAY	D	BRISCO	B	BROYLES	B
BONO	D	BOUSIC	D	BRAYTON	C	BRISCOT	D	BRUBECK	D
BONSALL	D	BOW	D	BRAZILTON	D	BRISCOT, DRAINED	C	BRUCE	B/D
BONTA	B	BOWBAC	C	BRAZITO	A	BRISKY	D	BRUELLA	B
BONTI	C	BOWBELLS	B	BRAZITO, THICK	B	BRISTOW	D	BRUELLA, HARD	C
BONWIER	C	BOWDISH	C	SURFACE		BRITTO	D	SUBSTRATUM	
BONWIER, GRADED	D	BOWDLE	B	BRAZITO, THICK	C	BRITTON	D	BRUFFY	B
BONZ	C	BOWDOIN	D	SURFACE,		BRITWATER	B	BRUHEL	B
BOOFORD	C	BOWDRE	C	SALINE-ALKALI		BROAD	C	BRUIN	B
BOOFUSS	D	BOWEN	C	BRAZON	C	BROAD CANYON	B	BRUMAN	B
BOOKCLIFF	B	BOWERS	C	BRAZORIA	D	BROADALBIN	C	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	BOWLAKE	C	BRECKSVILLE	C	BROADHEAD	C	BRUNEEL	D
BOOMER	B	BOWLUS	B	BREECE	B	BROADHURST	D	BRUNELDA	D
BOOMSTICK	D	BOWMAN	C	BREGAR	D	BROADMOOR	C	BRUNO	A
BOOMTOWN	D	BOWMANSVILLE	B/D	BREIEN	B	BROADUS	B	BRUNSWICK	B
BOONE	A	BOWNS	C	BREKO	B	BROADWELL	B	BRUNZELL	B
BOONESBORO	B	BOWSTRING	A/D	BREMER	C	BROBETT	C	BRUSHCREEK	C
BOONEVILLE	B	BOXELDER	C	BREMER, SANDY	B	BROCK	D	BRUSHCREEK	B
BOONTON	C	BOXFORD	C	SUBSTRATUM		BROCKET	C	BRUSSELS	C
BOONVILLE	C	BOXVILLE	C	BREMO	C	BROCKGULCH	C	BRUSSETT	B
BOONVILLE	D	BOXWELL	C	BREMS	A	BROCKLISS	B	BRYAN	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	BRYMAN	B
BORACHO	C	BOYKIN	B	BRENTON	B	BROCKTON	D	BRYSTAL	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	BREVARD	B	BROE	B	BUCHANAN	C
BORDER	B	BRABAS	D	BREVATOR	C	BROGAN	B	BUCHEL	D
BOREALIS	D	BRACE	C	BREVORT	B/D	BROGDON	B	BUCHENAU	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

BUCHENAU, THICK SOLUM	B	BURCHELL	C	CABO ROJO	C	CALODO	C	CANTEEN	B
BUCKAROO	C	BURDETT	C	CABOOSE	B	CALOOSA	C	CANTEY	D
BUCKBAY	C	BUREN	C	CABOT	D	CALOUSE	B	CANTINA	C
BUCKCREEK	C	BURGESS	C	CABRILLO	C	CALPAC	B	CANTON	B
BUCKEYE	C	BURGI	B	CABSTON	B	CALPEAK	D	CANTON BEND	C
BUCKHALL	B	BURIBURI	C	CACHE	D	CALPINE	B	CANTRIL	B
BUCKHOUSE	B	BURKE	C	CACIGUE	C	CALROY	B	CANTUA	B
BUCKING	A	BURKETOWN	C	CACTUSFLAT	C	CALUME	B	CANTUCHE	D
BUCKLAKE	C	BURKEVILLE	D	CADDO	D	CALVERTON	C	CANUTIO	B
BUCKLAND	C	BURKHARDT	B	CADEVILLE	D	CALVIN	C	CANWALL	C
BUCKLE	B	BURLEIGH	A/D	CADILLAC	A	CALVISTA	D	CANYON	D
BUCKLEBAR	B	BURLESON	D	CADIZ	B	CALWOODS	D	CAPAC	C
BUCKLEY	D	BURLINGTON	A	CADMUS	B	CALZACORTA	D	CAPAY	D
BUCKLICK	C	BURMAH	D	CADOMA	D	CAMAGUEY	D	CAPE	D
BUCKLICK, THICK SOLUM	B	BURNAC	D	CAESAR	A	CAMARGO	B	CAPE FEAR	D
		BURNBOROUGH	B	CAGEY	C	CAMARILLO	C	CAPEHORN	D
BUCKLON	D	BURNEL	C	CACLE	C	CAMARILLO, DRAINED	B	CAPERS	D
BUCKNELL	D	BURNETTE	C	CAGUABO	D	CAMAS	A	CAPERTON	D
BUCKNEY	B	BURNHAM	D	CAGWIN	B	CAMAS, STONY	B	CAPHOR	B
BUCKPEAK	B	BURNSIDE	B	CAHABA	B	CAMATTA	D	CAPILLO	C
BUCKS	B	BURNSVILLE	B	CAHONA	B	CAMBARGE	B	CAPISTRANO	B
BUCKSHOT	B	BURNSWICK	B	CAID	B	CAMBERN	C	CAPITAN	D
BUCKSKIN	C	BURNT LAKE	A	CAINHOY	A	CAMBERT	C	CAPJAC	C
BUCKTON	B	BURNTRIVER	B	CAIRO	D	CAMBETH	C	CAPLEN	D
BUDE	C	BURR	D	CAJALCO	C	CAMBRIA	B	CAPLES	D
BUDIHOL	D	BURRITA	D	CAJETE	B	CAMBRIDGE	C	CAPLES, DRAINED	C
BUDLEWIS	C	BURROWSVILLE	C	CAJON, OVERWASH	A	CAMDEN	B	CAPONA	C
BUELL	B	BURSLEY	D	CAJON, LOAMY SUBSTRATUM	A	CAMEEK	D	CAPOOSE	C
BUENA VISTA	B	BURSON	C			CAMELBACK	B	CAPPS	B
BUFFARAN	D	BURT	D	CAJON, SILTY SUBSTRATUM	A	CAMEO	B	CAPSHAW	C
BUFFCREEK	B	BURTON	B	CAJON, ALKALI, OVERWASH	A	CAMERON	D	CAPTINA	C
BUFFINGTON	B	BURWELL	C			CAMILLUS	B	CAPTIVA	B/D
BUFFMEYER	B	BUSBY	B	CAJON, SALINE-ALKALI	B	CAMINO	C	CAPULIN	B
BUFFORK	C	BUSE	B			CAMPANA	B	CARACOLES	D
BUFTON	C	BUSHER	B	CAJON, COOL, OVERWASH	A	CAMPBELL, MUCK SUBSTRATUM	C	CARADAN	D
BUHRIG	C	BUSHMAN	B					CARALAMPI	B
BUICK	C	BUSHNELL	C	CAJON, GRAVELLY	A	CAMPBELL, DRAINED	B	CARBENGLE	B
BUIST	B	BUSHVALLEY	D	CAJON, COOL	A	CAMPBELLTON	C	CARBO	C
BUKO	B	BUSKA	B	CAJON, WARM	A	CAMPCREEK	C	CARBOL	D
BUKO, WET	C	BUSSY	C	CALABAR	D	CAMPIA	B	CARBONA	D
BUKREEK	B	BUSTER	B	CALABASAS	B	CAMPO	C	CARBONDALE	A/D
BULAKE	D	BUSTI	C	CALAMINE	D	CAMPONE	C	CARCITY	D
BULKLEY	C	BUSYWILD	B	CALAMITY	D	CAMPSPASS	B	CARDENAS	D
BULL RUN	B	BUTANO	C	CALAMUS	A	CAMRODEN	C	CARDIFF	B
BULL RUN, HARDPAN SUBSTRATUM	C	BUTCHE	D	CALAVERAS	B	CANA	C	CARDIGAN	B
		BUTLER	D	CALAWAH	B	CANAAN	C	CARDINGTON	C
BULL TRAIL	B	BUTLERTOWN	C	CALCO	B/D	CANADIAN	B	CARDON	D
BULLARDS	B	BUTTERFIELD	C	CALCOUSTA	B/D	CANADICE	D	CAREFREE	D
BULLCREEK	D	BUTTERMILK	B	CALCROSS	B	CANALOU	B	CAREY	B
BULLFLAT	B	BUTTERS	B	CALD	C	CANANDAIGUA	D	CAREY LAKE	B
BULLFOR	C	BUTTON	D	CALDER	D	CANASERAGA	C	CARGENT	B
BULLION	D	BUTTONHOOK	B	CALDERWOOD	D	CANAVERAL	C	CARGILL	C
BULLNEL	C	BUTTONWILLOW	C	CALDWELL	C	CANBURN	D	CARIBEL	B
BULLOCK	D	BUXIN	D	CALDWELL, DRAINED	B	CANDELARIA	B	CARIBOU	B
BULLREY	B	BUXTON, SOMEWHAT POORLY DRAINED	D	CALE	B	CANDELERO	C	CARIOCA	B
BULLUMP	B			CALEAST	C	CANDERLY	B	CARIS	C
BULLYARD	B	BUXTON, STONY	C	CALEB	B	CANDLER	A	CARJO	C
BULLWINKLE	D	BUXTON, MODERATELY WELL DRAINED	C	CALEDONIA	B	CANDLESTICK	C	CARLIN	D
BULLY	B			CALENDAR	C	CANDOR	A	CARLINTON	C
BULOW	A	BUZZN	A	CALERA	C	CANE	C	CARLISLE	A/D
BUNCOMBE	A	BYARS	D	CALHI	A	CANEADEA	D	CARLITO	D
BUNDO	B	BYBEE	D	CALHOUN	D	CANEEK	B	CARLOS	A/D
BUNDORF	D	BYINGTON	C	CALICO	C	CANELO	D	CARLOTTA	B
BUNDY	C	BYLER	C	CALICOTT	A	CANEST	D	CARLOW	D
BUNDYMAN	C	BYLO	B	CALIFON	C	CANEYVILLE	C	CARLSBAD	C
BUNEJUG	C	BYNUM	C	CALIMUS	B	CANEZ	B	CARLSBORG	A
BUNKER	B	BYRAM	C	CALITA	B	CANFIELD	C	CARLSON	B
BUNKERHILL	D	BYRNIE	D	CALIZA	B	CANISTEO	B/D	CARLSTROM	C
BUNKWATER	C	CABALLO	B	CALKINS	C	CANISTEO, STONY	D	CARLTON	C
BUNKY	C	CABARTON	D	CALLABO	C	CANIWE	B	CARMACK	B
BUNNELL	B	CABBA	D	CALLAHAN	D	CANLON	D	CARMEL	C
BUNSELMEIER	B	CABBART	C	CALLAN	C	CANNELL	B	CARMI	B
BUNTINGVILLE	C	CABBART, STONY	D	CALLEGUAS	D	CANNING	B	CARMICHAEL	C
BUNYAN	B	CABBART, WARM	D	CALLINGS	C	CANNON	B	CARMODY	C
BURBANK	A	CABEZON	D	CALLISBURG	C	CANNONVILLE	D	CARNASAW	C
BURCH	B	CABIN	B	CALLOWAY	C	CANOE	B	CARNEGIE	C
BURCHAM	B	CABINET	C	CALMAR	B	CANOVA	B/D	CARNERO	C
BURCHARD	B	CABLE	B/D	CALNEVA	C	CANTALA	B	CARNEY	D
								CAROLINE	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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	CATANO	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	CHARO	C	CHICANE	C		
CARRANZA	B	CATAULA	B	CENTERFIELD	B	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	B	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	CHICKREEK	D		
CARSITAS	A	CATHAY	C	CERBAT	D	CHATCOLET	B	CHICOLETE	C		
CARSITAS, WET	B	CATHCART	B	CERESCO	B	CHATEAU	D	CHICOTE	D		
CARSON	D	CATHEDRAL	D	CERINI	B	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	B	CATHLAMET	B	CERRILLOS	B	CHATT	C	CHILAO	C		
CARTAGENA	D	CATHRO	A/D	CERRO	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	CHAUTAUQUA	C	CHILDS	B		
CARTHAGE	B	CATLIN	B	CHACON	D	CHAVIES	B	CHILGREN	C		
CARUSO	C	CATMAN	D	CHAD	C	CHAWANAKEE	C	CHILHOWIE	C		
CARUTHERSVILLE	B	CATNIP	D	CHAFFEE	D	CHAYSON	C	CHILI	B		
CARVER	A	CATOCTIN	C	CHAGRIN	E	CHAZOS	C	CHILICOTAL	B		
CARWILE	D	CATOOSA	B	CHAIN	C	CHEADLE	D	CHILKOOT	D		
CARYTOWN	D	CATPOINT	A	CHAIRES	B/D	CHEAHA	D	CHILL	D		
CARYVILLE	B	CATTCREEK	B	CHAIRES,	D	CHEBOYGAN	B	CHILLUM	B		
CASA GRANDE	C	CATTCREEK,	A	DEPRESSIONAL		CHECHI	D	CHILMARK	C		
CASABONNE	B	GRAVELLY		CHAIX	B	CHECKER	C	CHILOQUIN	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	B	CHEDEHAP	B	CHILTON	B		
CASCAJO, COBBLY	B	CAUSEWA	C	CHALMERS	B/D	CHEDESKI	B	CHIMAYO	D		
CASCILLA	B	CAUSEY	B	CHAMA, MODERATELY	B	CHEDSEY	C	CHIME	C		
CASCO	B	CAVAL	B	SLOW PERM		CHEEBE	D	CHIMENEA	D		
CASE	B	CAVANAUGH	C	CHAMA, MODERATE	B	CHEEKTOWAGA	D	CHIMNEY	A		
CASEY	D	CAVE	D	PERMEABILITY		CHEESEMAN	B	CHINAPOINT	D		
CASHEL	C	CAVEGULCH	B	CHAMA, COOL	C	CHEHALEM	C	CHINCAP	B		
CASHIERS	B	CAVEHILL	C	CHAMATE	B	CHEHALIS	B	CHINCHALLO	D		
CASHION	D	CAVELT	D	CHAMBEAM	B	CHEHULPUM	D	CHINCOTEAGUE	D		
CASHMERE	B	CAVENDISH	B	CHAMBERINO	C	CHELAN	B	CHINEN	D		
CASHMONT	B	CAVO	D	CHAMBERLAIN	B	CHELSEA	A	CHINIAK	A		
CASITO	D	CAVODE	C	CHAMISE	D	CHEMAWA	B	CHINO	C		
CASLO	D	CAVOUR	D	CHAMOKANE	C	CHEN	D	CHINO, DRAINED	B		
CASLO, MODERATELY WET	C	CAYA	D	CHAMPAGNE	B	CHENA	A	CHINDOK	B		
		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 WELL DRAINED	B	CAZENOVIA	B	CHANNAHON	D	CHEOAH	B	SALINE-ALKALI			
		CEBOLIA	C	CHANNING	B	CHEQUEST	C	CHIPMAN,	C		
CASSIRO	B	CEBOLLETA	C	CHANTA	B	CHERIONI	D	MODERATELY WET			
CASSIRO, STONY	C	CEBONE	C	CHANTIER	D	CHEROKEE	D	CHIPMAN, DRAINED	D		
CASSOLARY	C	CEBOYA	C	CHAPANOKE	C	CHERRY	C	CHIPOLA	A		
CASTAIC	C	CECIL	B	CHAPERTON	C	CHERRY, CALCAREOUS	B	CHIPPENY	D		
CASTALIA	C	CEDA	B	CHAPIN	C	CHERRY, COOL	B	CHIPPEWA	D		
CASTANA	B	CEDAR BUTTE	D	CHAPMAN	B	CHERRY SPRING	C	CHIRENO	D		
CASTELL	C	CEDAR MOUNTAIN	D	CHAPOT	B	CHERRYHILL	B	CHIRICAHUA	D		
CASTELLEIA	B	CEDARAN	D	CHAPPELL	A	CHERUM	B	CHIPPCHATTER	B		
CASTELLO	B	CEDARBLUFF	C	CHAPPUIS	C	CHESAW	A	CHISCA	D		
CASTEPHEN	C	CEDARCREEK	C	CHAQUA	B	CHESHIRE	B	CHISMORE	D		
CASTILE	B	CEDARFALLS	A	CHARCO	C	CHESHNINA	C	CHISOLM	A		
CASTINO	C	CEDARGAP	B	CHARCOL	B	CHESNIMNUS	B	CHISPA	B		
CASTINO, NONSTONY	D	CEDARHILL	B	CHARD	B	CHESTATEE	B	CHISTOCHINA	B		
CASTLE	D	CEDARPASS	B	CHARDOTON	C	CHESTER	B	CHITINA	C		
CASTLEVALE	D	CEDONIA	B	CHARETTE	C	CHESTERTON	D	CHITTUM	D		
CASTNER	D	CEEK	B	CHARGO	D	CHESTNUT	B	CHITWOOD	D		
CASTO	C	CELACY	C	CHARITON	C	CHESTONIA	D	CHIVATO	C		
CASTON	B	CELESTE	D	CHARLEBOIS	B	CHESUNCOOK	C	CHIWAUKUM	B		
CASTRO	D	CELETON	D	CHARLEBOIS, WET	C	CHETCO	D	CHIWAWA	B		
CASTROVILLE	B	CELINA	C	CHARLES	C	CHETEK	B	CHO	C		
CASUSE	D	CELIO	C	CHARLESTON	C	CHETWYND	B	CHOATES	C		
CASVARE	D	CELLAR	D	CHARLEVOIX	B	CHEVAL	C	CHOBEE	B/D		
CASWELL	B	CELSOSPRINGS	C	CHARLOS	B	CHEVELON	C	CHOBEE,	D		
CATALINA	B	CEMBER	C	CHARLOS, WET	D	CHEVIOT	B	DEPRESSIONAL			

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

CHOBEE, LIMESTONE SUBSTRATUM	D	CLALLAM	C	CLIPPER	D	COKEL	B	COLVIN, OVERBLOWN, SALINE	C
CHOCCOLOCCO	B	CLAM GULCH	D	CLIPPER, DRAINED	C	COKER	D		
CHOCK	D	CLAMO	C/D	CLODINE	D	COKESBURY	D	COLWOOD	B/D
CHOCORUA	D	CLAMP	D	CLONTARF	B	COKEVILLE	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	COLDCREEK	B	COMER	B
CHOWAN	D	CLARENDON	C	CLOUD RIM	B	COLDENT	C	COMETA	D
CHRIS	C	CLARESON	C	CLOUDCROFT	D	COLE	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	COLIBRO	B	COMMSKI	B
CHRISTY	C	CLARKELEN	B	CLOVIS	B	COLINAS	B	COMO	A
CHRODER	B	CLARKRANGE	C	CLOWERS	B	COLITA	D	COMORABI	D
CHROME	C	CLARKSBURG	C	CLOWERS, WET	C	COLLAMER	C	COMODORE	D
CHRYSLER	C	CLARKSDALE	C	CLOWFIN	B	COLLARD	B	COMORO	B
CHUALAR	B	CLARKSVILLE	B	CLUFF	C	COLLAYOMI	B	COMPASS	B
CHUBBS	C	CLARNO	B	CLUNIE	D	COLLBRAN	D	COMPTCHE	B
CHUCKANUT	B	CLATO	B	CLURDE	B	COLLBRAN, COBBLY	C	COMSTOCK	C
CHUCKAWALLA	B	CLATSOP	D	CLURO	B	COLLEGEDALE	C	COMUS	B
CHUCKLES	B	CLAUNCH	B	CLYDE	B/D	COLLEGIATE	D	CONA	C
CHUCKRIDGE	D	CLAVERACK	C	CLYMER	B	COLLETT		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	CONASAUGA	C
CHULITNA	B	CLAYSPRINGS	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	CLEAR LAKE, SUBSTRATUM		COAMO	C	COLMOR	B	CONCONULLY	B
CHURCHILL	D	CLEAR LAKE, MODERATELY WET	C	COARSEGOLD	C	COLNEVEE	B	CONCORD	D
CHURCHVILLE	D	CLEARBROOK	D	COATSBURG	D	COLO	B/D	CONDA	D
CHURN	B	CLEARFIELD	C	COBAT	B	COLO, DRAINED	B	CONDIE	B
CHUSKA	D	CLEARFORK	D	COBATUS	C	COLO, NONFLOODED	B	CONDIT	D
CHUTE	A	CLEARWATER	D	COBB	B	COLOCKUM	B	CONDON	C
CIALES	D	CLEAVAGE	D	COBBSFORK	D	COLOMA	A	CONE	A
CIBEQUE	B	CLEAVER	D	COBEN	D	COLOMBO	B	CONECUH	D
CIBO	D	CLEAVMOR	D	COBEY	B	COLONA	C	CONEJO	B
CIBOLA	B	CLEBIT	D	COBLE	D	COLONIE	A	CONEJO, WET	C
CID	C	CLEGG	B	COBDC	C	COLONVILLE	C	CONEJO, GRAVELLY SUBSTRATUM	C
CIDRAL	C	CLEGHORN	C	COBRE	C	COLORADO	B		
CIENEBA	C	CLEMAN	B	COBURG	C	COLOROCK	D	CONESTOGA	B
CIEND	D	CLEMENTINE	C	COCHETOPA	C	COLORDW	B	CONESUS	B
CIERVO, ALKALI	D	CLEMENTINE, DRAINED	B	COCHINA	D	COLOSO	D	CONETOE	A
CIERVO, ALKALI, WET	D	CLEMS	B	COCHITI	C	COLOSSE	A	CONGAREE	B
CIERVO, RECLAIMED	C	CLEMVILLE	B	COCHRAN	C	COLP	C	CONGER	C
CIFIC	C	CLENDENEN	D	COCOA	A	COLRAIN	B	CONGER, COBBLY SUBSTRATUM	D
CIMARRON	C	CLEONE	B	COCODRIE	C	COLSAVAGE	C		
CINCINNATI	C	CLEORA	B	COCOLALLA	D	COLTER	B	CONGLE	B
CINCO	A	CLERF	C	COCOLALLA, DRAINED	C	COLTHORP	D	CONI	D
CINDERHURST	D	CLERGERN	B	CODLEY	B	COLTON	A	CONIC	C
CINEBAR	B	CLERMONT	D	CODORUS	C	COLTROOP	D	CONLEN	B
CINNADALE	D	CLEVELAND	C	CODQUIN	D	COLTS NECK	B	CONLEY	C
CINNAMON	B	CLEVERLY	B	CODYLAKE	B	COLUMBIA, MUCK SUBSTRATUM	B	CONNEAUT	C
CINTRONA	D	CLICK	A	COE	A	COLUMBIA, DRAINED, CLAY SUBSTRATUM	B	CONNEL	B
CIPRIANO	D	CLIFFDELL	B	COERDCK	D	COLUMBIA, MODERATELY WET	C	CONNERTON	B
CIRAC	B	CLIFFDOWN	B	COESSE	C/D	COLUMBIA, DRAINED	B	CONOSTA	C
CIRCLEBACK	A	CLIFFHOUSE	C	COFF	C	COLUMBIA, FLOODED	C	CONOTTON	B
CIRCLEBAR	C	CLIFFORD	C	COFFEEN	B	COLUMBIA, CLAY SUBSTRATUM	C	CONOVER	C
CIRCLEVILLE	C	CLIFSAND	B	COGGON	B	COLUMBIA, SLOPING	B	CONOWINGO	C
CISCO	B	CLIFTERSON	B	COGNA	B	COLUMBINE	A	CONPEAK	D
CISNE	D	CLIFTON	B	COGSWELL	C	COLUMBUS	C	CONRAD	A/D
CISPUS	B	CLIFTY	B	COHAGEN	D	COLUSA	C	CONROE	B
CITADEL	C	CLIMARA	D	COHASSET	B	COLVARD	B	CONSEJO	C
CITICO	B	CLIMAX	D	COHOCTAH	B/D	COLVILLE	D	CONSER	D
CITRONELLE	D	CLIME	C	COHOCTAH, SANDY SUBSTRATUM	D	COLVILLE, DRAINED	C	CONSTABLE	A
CLACKAMAS	D	CLINETOP	D	COHOE	B	COLVIN	C/D	CONSTANCIA	D
CLAIBORNE	B	CLINT	C	COILS	C	COLVIN, SALINE	C	CONSUMO	B
CLAIRE	A	CLINTON	B	COKEDALE	D			CONTACT	A
CLAIREMONT	B			COKEDALE, DRAINED	C			CONTEE	D
								CONTIDE	B
								CONTINE	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

CONTINENTAL	C	CORRALITOS, SILTY	B	COWERS	B	CREVA	D	CUBCREEK	B
CONTO	B	SUBSTRATUM		COWESTGLEN	B	CREVASSE	A	CUBERANT	B
CONTRA COSTA	C	CORRECO	C	COWETA	C	CREVISCREEK	C	CUCAMUNGO	D
CONTRARY	B	CORRIGAN	D	COWGIL	B	CREWS	D	CUCHILLAS	C
CONVENT	C	CORSON	C	COWHORN	B	CRIDER	B	CUCHO	C
COOERS	B	CORTA	D	COWICHE	B	CRIMS	D	CUDAHY	D
COOK	D	CORTADA	B	COWLAKE	B	CRINKER	C	CUDAHY, DRAINED	C
COOKPORT	C	CORTEZ	D	COWLITZ	A	CRIPPIN	E	CUDDEBACK	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		CUERVO	C
COOMBS	B	CORUNNA	B/D	COX	D	CRISTOBAL	B	CUESTA	C
COONSKIN	C	CORWIN	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	CUEVOLAND	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	COSHOCTON	C	COYNE	B	CROKE	B	CULPEPER	C
COPELAND,	D	COSKI	B	COYOTECREEK	E	CROMWELL	A	CULTUS	B
DEPRESSIONAL		COSTILLA	A	COZAD	E	CRONKHITE	C	CULVING	C
COPEMAN	B	COSUMNES	C	COZBERG	B	CRONKS	C	CUMBERLAND	B
COPENHAGEN	D	COTACO	C	COZTUR	D	CROOKED	D	CUMBRES	C
COPITA	B	COTAIL	B	CRABTREE	C	CROOKED CREEK	D	CUMLEY	C
COPPER RIVER	D	COTANT	D	CRACKERCREEK	B	CROOKED CREEK,	C	CUMMINGS	D
COPPER RIVER,	B	COTATI	C	CRACKLER	E	DRAINED		CUMMISKEY	B
LACUSTRINE		COTEAU	C	CRADDOCK	B	CROOKED CREEK,	C	CUNARD	B
SUBSTRATUM		COTHA	C	CRADLEBAUGH	D	FLOODED		CUNDICK	D
COPPER RIVER, TILL	B	COTITO	B	CRADLEBAUGH,	C	CROOKSTON	B	CUNDIYO	B
SUBSTRATUM		COTO	B	SALINE-ALKALI		CROOM	C	CUNNINGHAM	C
COPPER RIVER,	B	COTOPAXI	A	CRADLEBAUGH,	C	CROPLEY	D	CUPCO	C
SILTY SUBSTRATUM		COTT	B	DRAINED		CROPPER	D	CUPOLA	B
COPPER RIVER,	B	COTTER	B	CRAFT	B	CROQUIB	D	CUPPER	B
GRAVELLY		COTTERAL	B	CRAFTON	C	CROSBY	C	CUPPLES	C
SUBSTRATUM		COTTLE	D	CRAGGEY	D	CROSIER	C	CUPPY	D
COPPERCREEK	B	COTTONEVA	C	CRAGO	E	CROSS	D	CURABITH	A
COPPEREID	D	COTTONTHOMAS	B	CRAGOLA	D	CROSSPLAIN	C	CURANT	B
COPPERTON	B	COTTONWOOD	C	CRAGOSEN	D	CROSSTELL	D	CURDLI	C
COPPOCK	B	COTTRELL	C	CRAIG	E	CROSSVILLE	B	CURECANTI	B
COPSEY	D	COTULLA	D	CRAIGMILE	B/D	CROSWELL	A	CURHOLLOW	D
COQUAT	D	COUCH	D	CRAIGSVILLE	B	CROT	D	CUROB	D
COQUILLE	D	COUGARBAY	D	CRAMER	D	CROTON	D	CURRAN	C
CORA	D	COUGHANOUR	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	B	CURTIN	D
CORBETT	B	COULTERG	B	CRANFILL	B	CROW HILL	C	CURTIS CREEK	D
CORBILT	B	COULTERVILLE	D	CRANNLER	B	CROWCAMP	D	CURTIS SIDING	A
CORBIN	B	COUNCELOR	B	CRANSTON	E	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	CRATER LAKE	B	CROWLEY	D	CUSHMAN	C
CORDESTON	B	COUPEE	B	CRATERMO	C	CROWNEST	D	CUSHOOL	C
CORDOVA	C/D	COUPEVILLE	C	CRAVEN	C	CROWSHAW	B	CUSICK	D
CORDY	B	COURT	B	CRAWFORD	D	CROWTHER	D	CUSTCO	B
CORIFF	B/D	COURTHOUSE	D	CRAWLEYVILLE	B	CROYDON	B	CUSTER	D
CORINTH	C	COURTLAND	B	CREAL	C	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	CUTHBERT	C
CORLEY	B/D	COUSE	C	CREEDMOOR	C	CRUISER	B	CUTHBERT, 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	C	CUYAMA	B
CORNICK	D	COVELAND, DRAINED	C	CRELDON	C	CRUNKER	B	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	COVEYTOWN	C	CRESAL	B	CRUTCH	C	CYLINDER	B
CORNVILLE	B	COVILLE	B	CRESBARD	C	CRUTCHER	C	CYMRIC	D
COROLLA	D	COVING	C	CRESCO	C	CRUZE	C	CYNTHIANA	D
CORONA	B	COVINGTON	D	CRESKEN	B	CRYLUHA	C	CYNTHIANIA	D
CORONACA	B	COWAN	B	CRESPIN	C	CRYSTAL LAKE	B	CYPHER	D
COROZAL	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	CRETE	C	CUBA	B	DACKER	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

DACONO	B	DARLAND	B	DECKERVILLE,	C	DELLO, CLAY	B	DESCHELL	B
DACONO, COBBLY	C	DARLEY	C	DRAINED		SUBSTRATUM		DESCHUTES	C
SUBSTRATUM		DARLING	B	DECLO	B	DELLROSE	B	DESCOT	B
DACORE	B	DARNSTADT	D	DECOLNEY	B	DELLS	C	DESEED	C
DACOSTA	D	DARNELL	C	DECORDOVA	B	DELLWOOD	A	DESERET	C
DADE	A	DARNEN	B	DECRAM	C	DELMA	C	DESHA	D
DADINA	D	DAROW	C	DECROSS	B	DELMITA	C	DESHLER	C
DAGAN	B	DARR	B	DECY	E	DELMONT	B	DESKAMP	C
DAGFLAT	C	DARRET	C	DEDAS	D	DELNORTE	C	DESMET	B
DAGLUM	D	DARROCH	B	DEDMOUNT	C	DELORO	D	DESOLATION	B
DAGOR	B	DARROCH, BEDROCK	C	DEDRICK	D	DELOSS	B/D	DESPAIN	B
DAGUAO	C	SUBSTRATUM		DEE	C	DELP	A	DESTAZO	B
DAGUEY	C	DARROUZETT	C	DEECREE	B	DELPHI	B	DESTER	C
DAHAR	C	DARSIL	C	DEEFAN	D	DELPHILL	C	DETER	C
DAHLQUIST	B	DARST	C	DEEMER	B	DELPIEDRA	D	DETOUR	B
DAICK	D	DART	A	DEEPCUT	D	DELPLAIN	D	DETRA	B
DAIGLE	C	DARTMOUTH	B	DEEPEEK	D	DELPOINT	C	DETROIT	C
DAILEY	A	DARVEY	B	DEEPWATER	B	DELRAY	B/D	DEUNAH	D
DAILEY, LOAMY	B	DARWIN	D	DEER CREEK	C	DELRAY,	D	DEV	A
SUBSTRATUM		DASHER	D	DEER PARK	A	DEPRESSIONAL		DEVADA	D
DA,NT	B	DASSEL	B/D	DEERFIELD	B	DELRIDGE	B	DEVEN	D
DAKENT	B	DAST	B	DEERFORD	D	DELSON	C	DEVILS	D
DAKOTA	B	DATELAND	B	DEERHORN	C	DELTAJO	C	DEVILSCREEK	C
DALBO	B	DATEMAN	C	DEERLODGE	C	DELTON	B	DEVILSGAIT	D
DALBY	D	DATIL	B	DEERTON	A	DELWIN	A	DEVILSGAIT,	B
DALCAN	C	DATINO	D	DEERTRAIL	C	DELYNDIA	A	DRAINED,	
DALCO	D	DATINO, STONY	B	DEERWOOD	B/D	DEMAR	D	OCCASIONALLY	
DALE	B	DATWYLER	C	DEETZ	A	DEMAST	B	DEVILSGAIT,	B
DALECREEK	C	DAULTON	D	DEFENBAUGH	B	DEMENT	B	DRAINED	
DALEVILLE	D	DAVEY	B	DEFIANCE	D	DEMING	B	DEVINE	C
DALHART	B	DAVEY, WARM	A	DEFLER	B	DEMKY	D	DEVISADERO	C
DALIAN	B	DAVIDELL	B	DEFORD	A/D	DEMNER	B	DEVOE	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	DEMONTREVILLE	B	DEVOIGNES,	C
DALLARDSVILLE	C	DAYTONE	B	DEGRAND	B	DEMOPOLIS	C	PROTECTED	
DALLESPORT	B	DAWES	C	DEGREY	D	DEMOPOLIS, COBBLY	D	DEVOL	B
DALTON	C	DAWHOO	B/D	DEHANA	E	DEMOSS	D	DEVORE	B
DALUPE	B	DAWSON	A/D	DEHART	B	DEMOX	B	DEVOY	C
DALZELL	C	DAWTONIA	B	DEHAVEN	B	DEMPSEY	B	DEVRIES	C
DAMASCUS	B/D	DAXTY	C	DEHILL	B	DEMPSTER	B	DEWAR	D
DAMERON	B	DAY	D	DEHLINGER	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
DAMON	D	DAYTON	D	DEKOOM	B	DENBY	C	DEWVILLE	B
DANA	B	DAYTONA	B	DEKOVEN	D	DENCO	D	DEXTER	B
DANAHER	C	DAYVILLE	C	DEL REY	C	DENHAWKEN	D	DIA	C
DANAVORE	B	DAZE	D	DELA	D	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	DELANO	B	DENNY	D	DIAMOND	D
DANGBERG	D	DEADWOOD	D	DELASSUS	C	DENROCK	D	DIAMOND SPRINGS	C
DANIA	B/D	DEADYON	B	DELCOMB	D	DENTON	D	DIAMONDVILLE	C
DANJER	D	DEAMA	D	DELDOTA	D	DENURE	B	DIANEV	C
DANKO	D	DEAN	B	DELECO	D	DENVER	C	DIANOLA	D
DANLEY	C	DEANDALE	D	DELENA	D	DEPALT	D	DIASPAR	B
DANN	C	DEARBORN	B	DELEON	C	DEPCOR	B	DIATEE	B
DANNEMORA	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
DAPHNEDALE	C	DEBEQUE	B	DELHI	A	DERALLO	B	DICKEY	B
DAPOIN	C	DEBONE	D	DELICIAS	B	DERB	C	DICKINSON, MAP<25	B
DARBONNE	B	DEBORAH	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	B	DECAN	C	DELLO, OVERWASH	A	DERLY	D	DICKINSON, MAAT<50	B
DARDEN	A	DECANTEL	D	DELLO, SALINE	C	DEROUX	C	DICKMAN	A
DARDOON	B	DECATHON	C	DELLO, GRAVELLY	D	DERR	C	DICKSON	C
DARE	D	DECATUR	B	SUBSTRATUM, WET		DERRICK	B	DIDDY	D
DARFUR	B/D	DECCA	B	DELLO,	A	DES MOINES, DRY	B	DIEHLSTADT	C
DARGOL	D	DECCA, NONGRAVELLY	C	SALINE-ALKALI		DES MOINES, COBBLY	C	DIERSSEN	D
DARIEN	C	DECHEL	D	DELLO, MODERATELY	C	DESAN	A	DIETRICH	C
DARKBULL	B	DECKER	C	WET		DESART	C	DIGBY	B
DARKCANYON	C	DECKERVILLE	D	DELLO, DRAINED	A	DESATOYA	C	DIGGER	C
DARL	C					DESCALABRADO	D	DIGHTON	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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		DOUGH	D	DUCKSTON	A/D	DUROC	B
DILLEY	B	DOLEKEI	B	DOUGHERTY	A	DUCO	D	DURRSTEIN	D
DILLWYN	A	DOLEN	B	DOUGHTY	B	DUDA	A	DURST	C
DILMAN	C	DOLES	C	DOUGLAS	B	DUDGEN	D	DUSLER	C
DILTON	D	DOLLAR	C	DOUGVILLE	B	DUDLEY	D	DUSTON	A
DILTS	D	DOLLARD	C	DOUHIDE	D	DUEL	A	DUTCHESS	B
DIMAL	C	DOLLARHIDE	D	DOURO	B	DUELM	A	DUTEK	A
DIMEBOX	D	DOLLYCLARK	C	DOVER	B	DUETTE	A	DUTTON	C
DIMMICK	D	DOLMAN	C	DOVRAY	C/D	DUFF	B	DUVAL	B
DIMO	B	DOLPH	C	DOW	B	DUFFAU	B	DUXBURY	A
DIMYAW	C	DOLUS	C	DOWAGIAC	B	DUFFER	C	DUZEL	C
DINA	C	DOME	B	DOWDE	B	DUFFERN	A	DWIGHT	D
DINCO	B	DOMELL	B	DOWELLTON	D	DUFFIELD	B	DWORSHAK	B
DINES	B	DOMENGINE	C	DOWNATA	D	DUFFSON	B	DWYER	A
DINEVO	B	DOMERIE	B	DOWNER	B	DUFFYMONT	C	DYE	D
DINGLE	C	DOMEZ	B	DOWNEY	B	DUFORT	B	DYKE	B
DINGLISHNA	D	DOMINGUEZ	C	DOWNEYVILLE	D	DUFUR	B	DYLAN	D
DINGMAN	C	DOMINIC	B	DOWNS	B	DUGGINS	C	DYRENG	D
DINKELMAN	B	DOMINO	C	DOYCE	B	DUGOUT	D	EACHUS	B
DINKELS	B	DOMINSON	A	DOYCE, LOAMY	C	DUGWAY	C	EACHUSTON	D
DINNEN	B	DOMO	B	SUBSTRATUM		DUKES	A	EAD	C
DINSDALE	B	DONA ANA	B	DOYCE, MODERATELY	C	DULAC	C	EAGAR	B
DINUBA	C	DONAHUE	C	WET		DULCE	D	EAGLECONE	B
DINWOODY	B	DONALD	C	DOYCE, SANDY	C	DULEYLAKE	C	EAGLEPASS	D
DINZER	B	DONALDSON	B	SUBSTRATUM		DULLES	D	EAGLEROCK	B
DIOBSUD	C	DONAVAN	B	DOYLESTOWN	D	DULUTH	B	EAGLEVILLE	D
DIOXICE	B	DONERAIL	C	DOYN	D	DUMAS	B	EAGLEWING	B
DIPMAN	D	DONEY	C	DRA	C	DUMFRIES	B	EAKIN	B
DIPSEA	B	DONICA	A	DRAGE	B	DUMMERSTON	B	EALY	B
DIQUE	B	DONICA, LOAMY	B	DRAGOON	C	DUMONT	B	EAPA	B
DIREGO	D	SURFACE		DRAGSTON	C	DUN GLEN	B	EARCREE	B
DISABEL	C	DONIPHAN	B	DRAKE	B	DUNBAR	D	EARLE	D
DISAUTEL	B	DONKEHILL	D	DRAKNAB	A	DUNBARTON	D	EARLMONT	D
DISCO	B	DONLONTON	C	DRALL	B	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
DISWOOD	D	DONNER	C	DRESDEN	B	DUNDAS	B/D	EAST FORK	C
DITCHCAMP	C	DONNING	D	DRESSLER	C	DUNDAY	A	EAST LAKE	A
DITHOD	C	DONNYBROOK	D	DREWING	D	DUNDEE	C	EASTABLE	B
DITNEY	C	DOODLELINK	B	DREWS	B	DUNELLEN	B	EASTCAN	B
DIVERS	B	DOOLEY	C	DREXEL	B	DUNFORD	C	EASTCHOP	A
DIVIDE	B	DOOLIN	D	DRIFTWOOD	C/D	DUNGENESS	B	EASTGATE	B
DIVOT	C	DOONE	B	DRIGGS	B	DUNKIRK	B	EASTLAND	B
DIX	A	DOOR	B	DRISCOLL	C	DUNLAP	C	EASTON	D
DIXALETA	D	DOOWAK	A	DRIT	B	DUNLATOP	B	EASTPORT	A
DIXBORO	B	DORA	B/D	DRIVER	C	DUNMORE	B	EASTWELL	D
DIXIE	C	DORAN	C	DROEM	C	DUNN	A	EASTWOOD	D
DIXMONT	C	DORB	C	DROVAL	C	DUNNING	D	EATON	D
DIXON	B	DORCHESTER	B	DRUM	C	DUNNLAKE	D	EAUGALLIE	B/D
DIXONVILLE	C	DORERTON	B	DRUMMER	B/D	DUNNVILLE	B	EAUGALLIE,	D
DIYOU	C	DORMONT	C	DRUMMOND	D	DUNOIR	B	DEPRESSIONAL	
DOAK	B	DORNA	B	DRURY	B	DUNPHY	C	EAUPLEINE	B
DOAKUM	B	DOROSHIN	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		EBBERT	C/D
DOBEL	D	DORPER	D	DRYBURG	B	DUNSMUIR	B	EBBS	B
DOBENT	C	DORRANCE	A	DRYDEN	B	DUNSMUIR,	C	EBIC	D
DOBROW	D	DORS	B	DRYN	C	NONGRAVELLY		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	B	DUPEE	C	EBRO	D
DOCENA	C	DOSS	C	DUART	C	DUPLIN	C	ECCLES	B
DOCKERY	C	DOSSMAN	B	DUBAKELLA	C	DUPO	C	ECHARD	D
DOCPAR	B	DOTEN	D	DUBAKELLA,	C	DUPONT	D	ECHAW	A
DOCT	C	DOTHAN	B	GRAVELLY		DUPREE	D	ECHEMOOR	C
DODES	B	DOTLAKE	D	DUBAKELLA, COBBLY	C	DURADOS	A	ECKERT	D
DODGE	B	DOTSERO	B	DUBAY	B	DURALDE	C	ECKLEY	B
DODGEVILLE	B	DOTTA	B	DUBBS	B	DURAND	B	ECKMAN	B
DODSON	C	DOTY	B	DUBBS, FLOODED	C	DURANGO	B	ECKRANT	D
DOEL	C	DOUCETTE	B	DUBINA	C	DURANT	D	ECKVOLL	B
DOGER	A	DOUDLE	B	DUBLON	B	DURAZO	A	ECLIPSE	B
DOGIECREEK	B	DOUDS	B	DUBOIS	C	DURBIN	D	ECOLA	C
DOGUE	C	DOUGAL	D	DUBUQUE	B	DURELLE	B	ECON	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

ECONFINA	A	ELBOWLAKE	B	ELRICK	B	ENDOCHVILLE,	C	ESTER	D
ECTOR	D	ELBURN	B	ELRIN	F	DRAINED		ESTER, THAWED	C
EDALGO	C	ELBUTTE	D	ELROSE	B	ENOLA	B	ESTERO	D
EDDINGS	B	ELCO	F	ELS	A	ENON	C	ESTES	D
EDDS	B	ELD	B	ELSAH	B	ENOREE	D	ESTESLAKE	C
EDDY	C	ELDEAN	F	ELSIE	B	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	B	ELSTON	B	ENSIGN	D	ETACH	C
EDFRO	D	ELDERON, STONY	A	ELTREE	B	ENSLEY	B/D	ETCHEN	C
EDGAR	B	ELDGIN	B	ELTSAC	D	ENSTROM	B	ETELKA	C
EDGE	D	ELDON	B	ELVE	B	ENTENTE	B	ETHAN	B
EDGEHILL	C	ELDORADO	F	ELVEDERE	C	ENTERO	D	ETHANIA	B
EDGELEY	C	ELDRIDGE	C	ELVERS	B/D	ENTERPRISE	B	ETHELMAN	B
EDGEMONT	B	ELECTRA	C	ELVIRA	B/D	ENTIAT	D	ETHETE	B
EDGEWATER	C	ELEROY	B	ELWELL	C	ENTMOOT	C	ETHETE, SALINE	C
EDGEWICK	C	ELEVA	B	ELWHA	C	ENVILLE	C	ETHRIDGE	C
EDGINGTON	C/D	ELFCREEK	C	ELWOOD	C	ENVOL	D	ETIL	A
EDINA	D	ELFRIDA	B	ELY	F	ENZIAN	D	ETOE	B
EDINBURG	C	ELGEE	A	ELYSIAN	B	EOJ	C	ETOILE	D
EDISTO	C	ELHINA	C	ELZINGA	F	EOLA	D	ETOWAH	B
EDLIN	B	ELIJAH	C	EMBAL	B	EPHRAIM	C	ETOWN	B
EDLOE	B	ELINDIO	C	EMBARGO	C	EPHRATA	B	ETSEL	D
EDMINSTER	D	ELIOAK	C	EMBDEN	B	EPIKOM	D	ETTA	B
EDMONDS	D	ELIZA	D	EMBERTON	C	EPLEY	C	ETTER	B
EDMORE	D	ELK	B	EMBLEM	B	EPOKE	B	ETTERSBURG	B
EDMUND	D	ELK HOLLOW	B	EMBRY	F	EPOT	B	ETTRICK	B/D
EDMUNDSTON	B	ELK MOUNTAIN	B	EMBUDO	F	EPOUFETTE	B/D	EUBANKS	B
EDNA	D	ELKA	C	EMDENT	D	EPPING	D	EUCLID	C
EDNEYTOWN	B	ELKADER	B	EMDENT, BEDROCK	C	EPSIE	D	EUDORA	B
EDNEYVILLE	B	ELKCREEK	C	SUBSTRATUM,		EPVIP	D	EUER	B
EDOM	C	ELKHART	B	DRAINED		EQUIS	D	EUFAULA	A
EDROY	D	ELKHILLS	B	EMDENT, DRAINED	C	ERA	B	EUHARLEE	C
EDSON	C	ELKHORN	E	EMERALD	F	ERAKATAK	C	EULONIA	C
EDWARDS	B/D	ELKINS	D	EMERALDA	D	ERAM	C	EUNOLA	C
EEL	B	ELKINSVILLE	F	EMERSON	F	ERAMOSH	D	EUREKA	D
EELCOVE	D	ELKMOUND	D	EMIGRANT	C	ERBER	C	EUSBIO	C
EELPOINT	D	ELKNER	B	EMIGRATION	D	ERCAN	B	EUSTIS	A
EEP	C	ELKOL	D	EMILY	B	ERD	D	EUTAW	D
EFFIE	C	ELKRIDGE	B	EMLIN	C	ERICSON	B	EVADALE	D
EFFINGTON	D	ELKSEL	C	EMMA	C	ERIE	C	EVANGELINE	C
EGAM	C	ELKTON	C/D	EMMERT	A	ERIN	B	EVANS	B
EGAN	B	ELLABELLE	D	EMMET	B	ERNEM	D	EVANSHAM	D
EGAS	D	ELLEDGE	C	EMMONS	B	ERNEST	C	EVANSTON	B
EGBERT	D	ELLEN	F	EMORY	B	ERNO	B	EVANSVILLE	B/D
EGBERT, STRATIFIED	C	ELLETT	D	EMOT	F	ERRAMGUSPE	C	EVANT	D
SUBSTRATUM		ELLIBER	A	EMPEDRADO	B	EPVIDE	C	EVARD	B
EGBERT, MODERATELY	C	ELLICOTT	A	EMPEYVILLE	C	ESCABOSA	C	EVARO	B
WET		ELLINGTON	B	EMPIRE	B	ESCALANTE	B	EVART	D
EGBERT, DRAINED	C	ELLINOR	C	EMPORIA	C	ESCAMBIA	C	EVENDALE	C
EGBERT, SANDY	C	ELLIOTT	C	EMRICK	B	ESCANABA	A	EVERETT	A
SUBSTRATUM		ELLIOTTSVILLE	B	EMRO	C	ESCANO	C	EVERETT, HARD	B
EGBERT, SLOPING	C	ELLIS	D	ENBAR	B	ESCARLO	B	SUBSTRATUM	
EGELAND	B	ELLISFORDE	B	ENBAR, WET	D	ESCONDIDO	C	EVERGLADES	B/D
EGINBENCH	C	ELLISVILLE	B	ENCAMPMENT	E	ESHAMY	B	EVERLY	B
EGLIN	A	ELLOAM	D	ENCHANTED	B	ESLENDO	D	EVERMAN	C
EGYPT	D	ELLOREE	D	ENCIERRO	D	ESMERALDA	B	EVERSON	D
EICKS	C	ELLSWORTH	C	ENCINA	B	ESMOND	B	EVERWHITE	C
EIGHTLAR	D	ELLUM	C	ENDCAV	C	ESPARTO	F	EVESBORO	A
EIGHTMILE	D	ELLZEY	B/D	ENDERS	C	ESPELIE	B/D	EVRIDGE	B
EILERTSEN	B	ELM LAKE	A/D	ENDERSBY	E	ESPIL	D	EWA	B
EITZEN	B	ELMDALE	B	ENDICOTT	C	ESPINAL	A	EWA, BEDROCK	C
EKAH	C	ELMENDORF	D	ENDLICH	B	ESPINOSA	B	SUBSTRATUM	
EKALAKA	B	ELMINA	C	ENDSAW	C	ESPINT	D	EWALL	A
EKIM	C	ELMIRA	A	ENERGY	B	ESPLIN	D	EXCELSIOR	B
EKRUB	D	ELMONT	F	ENET	F	ESPY	C	EXCHEQUER	D
EL DARA	B	ELMORE	B	ENFIELD	B	ESQUATZEL	B	EXCLOSE	B
EL PECO	C	ELMRIDGE	C	ENGELHARD	B/D	ESRO	D	EXEL	C
EL RANCHO	B	ELMVILLE	B	ENGETT	A	ESRO, MODERATELY	C	EXETER	C
EL SOLYO	C	ELMWOOD	C	ENGLE	B	WET		EXETER, THICK	B
ELAM	A	ELNIDO	C	ENGLEWOOD	C	ESS	B	SOLUM	
ELAM, HARDPAN	B	ELNORA	B	ENKO	C	ESSAL	B	EXETTE	B
SUBSTRATUM		ELOCHOMAN	B	ENKO, OVERBLOWN	B	ESSEN	C	EXIRA	B
ELANDCO	B	ELOCIN	D	ENLOE	D	ESSEX	C	EXLINE	D
ELBA	C	ELOIKA	B	ENNING	D	ESSEXVILLE	A/D	EXRAY	D
ELBAVILLE	B	ELOMA	C	ENNIS	B	ESTACADO	B	EXUM	C
ELBERT	D	ELPAM	D	ENOCH	C	ESTACION	B	EYAK	C
ELBETH	B	ELPEDRO	B	ENOCHVILLE	D	ESTATE	C	EYERDOM	C
ELBON	B	ELRED	B/D			ESTELLINE	B	EYLAU	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

EYOTA	A	FARRAGUT	C	FETTIC	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	C	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	FORSGREN	C
FAGAN	C	FASKIN	B	FIELD	C	FLEX	D	FORSYTH	A
FAGASA	C	FATHOM	A	FIELDCREEK	B	FLO	A	FORT COLLINS	B
FAHEY	B	FATIMA	B	FIELDING	B	FLOER	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	FLORAHOME	A	FORTWINGATE	C
FAIRFAX	B	FAWIN	B	FINCASTLE	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	B/D	FOSS	B
FAIRLO	B	FAYETTEVILLE	B	FINGAL	C	FLORIDANA,	D	FOSSILON	D
FAIRMOUNT	D	FAYWOOD	C	FINGEROCK	D	DEPRESSIONAL		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	FINLEYPOINT	B	FLORISSANT	C	FOUNTAIN	D
FAIRWAY	C	FEATHERSTONE	D	FINNERTY	D	FLORITA	B	FOUR STAR	C
FAIRYDELL	C	FEDJI	A	FINO	B	FLOTAG	B	FOUR STAR, DRAINED	B
FAIRYLAWN	D	FEDORA	B/D	FINOL	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		FIRESTONE	C	FLUVANNA	C	FOXCREEK, DRAINED	C
FALK	C	FELICITY	A	FIRMAGE	B	FLYBOW	D	FOXHOME	B
FALKIRK	B	FELIPE	D	FIRO	D	FLYGARE	B	FOXMOUNT	C
FALKNER	C	FELIZ	B	FIROKE	B	FLYNN	B	FOXOL	D
FALLBROOK	B	FELKER	B	FIRSTVIEW	C	FLYNNCOVE	B	FOXTON	C
FALLCREEK	C	FELLOWSHIP	D	FIRTH	C	FOAD	C	FOXWORTH	A
FALLERT	B	FELOR	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	FOLDAHL	B	FRANCIS	A
FALOMA	D	FELTON	B	FISHLAKE	D	FOLEY	D	FRANCISCAN	C
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	FRANDSEN	B
FANCHER	C	FENELON	C	FISK	B	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	B	FONTANA	B	FRANKSTOWN	B
FANNIN	B	FENWOOD	B	FIVEBLOCK	C	FONTREEN	B	FRANKTOWN	D
FANNO	C	FERA	C	FIVEMILE	B	FOPIANO	D	FRANKVILLE	B
FANSHAW	B	FERDELFORD	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	FREDENSBORG	C
FARGO	D	FERNDALE	B	FLAGLER	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	C	FERNLEY	C	FLAMBEAU	B	FORDTRAN	C	FREDONYER	C
FARLOW, HIGH RAINFALL	C	FERNOW	B	FLAMING	A	FORDUM	D	FREE	B/D
		FERNPOINT	B	FLANAGAN	B	FORDVILLE	B	FREEBURG	C
FARMELL	B	FERNWOOD	B	FLANDREAU	B	FORELAND	D	FREECE	D
FARMINGTON	C	FERRELO	B	FLANE	C	FORELLE	B	FREEDOM	C
FARMSWORTH	D	FERRIS	D	FLANLY	B	FORESMAN	B	FREEDOM, SALINE	B
FARMTON	D	FERROBURRO	D	FLASHER	D	FORESTBURG	A	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	FREEON	B
FARNUM	B	FETT	D	FLATONIA	D	FORK	C	FREER	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

FREEST	C	FULSHEAR	C	GAPCOT	D	GED	D	GILISPIE	D
FREESTONE	C	FULSTONE	D	GAPO	D	GEE	C	GILLAND	C
FREETOWN	D	FULTON	D	GAPO, DRAINED	C	GEEBURG	C	GILLENDER	D
FREEWATER	B	FULTS	D	GAPPMAYER	B	GEEMORE	C	GILLIAM	C
FREEZENER	B	FULWIDER	D	GARA	C	GEER	B	GILLIGAN	B
FREEZEOUT	B	FUNTER	D	GARBER	B	GEERTSEN	B	GILLS	C
FRELSBURG	D	FUQUAY	B	GARBO	B	GEFO	A	GILLSBURG	C
FREMONT	C	FURNISS	D	GARBUTT	B	GEISEL	B	GILMAN	B
FREN	B	FURSHUR	D	GARCENO	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	C	GEM, STONY	D	GILROY	C
FRENCHMAN	B	FUSUVAR	D	GARCON	C	GEMID	C	GILSTON	B
FRENCHTOWN	D	GAASTRA	C	GARDELLA	D	GEMSON	B	GILT EDGE	D
FRESHWATER	D	GABALDON	B	GARDENA	B	GENAW	D	GIMLETT	B
FRESNO,	D	GABBS	C	GARDINER	A	GENEGRAF	B	GINAT	D
SALINE-ALKALI		GABBVALLY	D	GARDNER'S FORK	B	GENESEE	B	GINEX	D
FRESNO, THICK	C	GABEL	C	GARDNERVILLE	C	GENEVA	B	GINGER	D
SOLUM		GABICA	D	GARDONE	A	GENOA	D	GINI	B
FREWA	B	GABINO	D	GAREY	B	GENOLA	B	GINLAND	D
FREZNIK	D	GACEY	D	GARFAN	B	GENTILLY	D	GINNIS	C
FRIANA	D	GACHADO	D	GARFIELD	C	GENTRY	D	GINSER	C
FRIANT	D	GACIBA	D	GARHILL	D	GEOCONDA	C	GIRARD	D
FRIDLO	C	GADDES	C	GARIPER	C	GEOHROCK	B	GIRARDOT	D
FRIEDLANDER	C	GADDY	A	GARITA	E	GEORGECREEK	B	GIRD	B
FRIEDMAN	C	GADSDEN	D	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	GARMON	C	GEPFORD	D	GIVIN	C
FRIESLAND	B	GAGEBY	B	GARMORE	B	GEPP	B	GLACIERCREEK	A
FRIJOLES	B	GAGETOWN	B	GARNEL	D	GEPPERT	C	GLADDEN	B
FRINDLE	C	GAGIL	B	GARNER	D	GERALD	D	GLADEL	D
FRINES	C	GAHEE	B	GARNES	B	GERBER	D	GLADEVILLE	D
FRIO	B	GAIR	D	GARO	D	GERDRUM	D	GLADEWATER	D
FRIONA	C	GAILA	B	GARR	D	GERING	B	GLADSTONE	B
FRIOTON	C	GAINES	C	GARRETSON	B	GERLACH	D	GLADWIN	A
FRIPP	A	GAINESBORO	C	GARRETT	B	GERLANE	B	GLASGOW	C
FRISCO	B	GAINESVILLE	A	GARRISON	B	GERLE	B	GLASSNER	D
FRISITE	B	GALATA	D	GARROCHALES	D	GERMANTOWN	B	GLEAN	B
FRITZ	B	GALBRETH	D	GARSID	C	GERMANY	B	GLEASON	B
FRIZZELL	C	GALCHUTT	C	GARTON	C	GERMER	C	GLEBE	C
FROBERG	D	GALE	B	GARVESON	C	GERONI	B	GLEN	B
FRODO	D	GALEN	B	GARVIN	D	GERRARD	C	GLENBAR	B
FROHMAN	C	GALEPPI	B	GARWIN	B/D	GERRARD, DRAINED	B	GLENBAR, WET	C
FROLIC	B	GALESTINA	C	GARZA	B	GERST	D	GLENBERG	B
FROLIC,	C	GALESTOWN	A	GARZONA	D	GESSIE	B	GLENBLAIR	C
ELEVATION<8000		GALEY	B	GAS CREEK	D	GESSNER	B/D	GLENBROOK	D
FROLIC, FLOODED	C	GALILEE	C	GASCONADE	D	GESTRIN	B	GLENCARB	B
FRONDORF	B	GALISTEO	C	GASIL	B	GETAWAY	B	GLENCARB, WET,	C
FRONTENAC	B	GALISTEO,	D	GASQUET	B	GETCHELL	C	SALINE	
FRONTIER	C	SALINE-ALKALI		GASSAWAY	D	GETRAIL	D	GLENCOE	B/D
FRONTON	D	GALLAND	D	GASSVILLE	C	GETTYS	C	GLENCOE, PONDED	D
FROST	D	GALLATIN	C	GASTON	C	GETZVILLE	D	GLENDALE	B
FROZARD	C	GALLEGOS	B	GAT	B	GEWTER	C	GLENDALE, WET	C
FRUITA	B	GALLEN	B	GATES	B	GEYSEN	C	GLENDALE, RARELY	C
FRUITFIELD	A	GALLIA	E	GATESON	C	GIBBLER	C	FLOODED	
FRUITHURST	C	GALLIME	B	GATEVIEW	B	GIBBON	B	GLENDERSON	B
FRUITLAND	B	GALLION	B	GATEWAY	C	GIBBONSCREEK	C	GLENDIVE	B
FRUITLAND,	C	GALLMAN	B	GATEWOOD	C	GIBBS	D	GLENDORA	A/D
MODERATELY WET		GALLUP	B	GATLIN	B	GIBNEY	C	GLENEDEN	D
FRUITLAND, WET	C	GALOO	C/D	GATOR	D	GIBSONVILLE	D	GLENELG	B
FRYE	C	GALT	D	GATTON	B	GIBWELL	C	GLENFORD	C
FRYEBURG	B	GALVA	B	GAULDY	B	GIDEON	C	GLENHALL	B
FT, DRUM	C	GALVESTON	A	GAULEY	C	GIELOW	C	GLENHAM	B
FT, GREEN	D	GALVEZ	C	GAVEL	C	GIFFORD	D	GLENMEN	B
FUBAR	C	GALVIN	D	GAVILAN	C	GIGGER	C	GLENMORA	C
FUBBLE	D	GALWAY	B	GAVINS	D	GILA	B	GLENNALLEN	C
FUEGO	C	GAMBLER	B	GAVIOTA	D	GILBERT	D	GLENOMA	B
FUEGOSTA	D	GAMBOA	B	GAY	B/D	GILBOA	B	GLENPOOL	A
FUERA	C	GAMGEE	C	GAYLESVILLE	D	GILBY	B	GLENRIO	D
FUGAWEE	B	GANADO	D	GAYLORD	C	GILCHRIST	A	GLENROSE	B
FUGHES	C	GANCE	C	GAYNOR	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	GAZOS	C	GILES	B	GLENTON, WET	C
FULLER	D	GANSNER	C	GAZWELL	C	GILFORD	B/D	GLENTOSH	A
FULLERTON	B	GANSNER, PONDED	D	GEARHART	A	GILFORD,	D	GLENVIEW	B
FULMER	D	GANY	B	GEARY	B	STRATIFIED		GLENVILLE	C
FULMER, DRAINED	C	GAPBUTTE	B	GEBSON	B	SUBSTRATUM		GLENYON	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

GLOHM	C	GOOSEFLATS	D	GRANGEVILLE,	B	GRELLTON	B	GUAYABOTA	D		
GLORIA	D	GOOSMUS	B	DRAINED		GRENADA	C	GUAYAMA	D		
GLOUCESTER	A	GORDO	B	GRANGEVILLE,	B	GRENADIER	B	GUBE	C		
GLOVER	C/D	GORE	D	OCCASIONALLY		GRENVILLE	B	GUBEN	B		
GLYNDON	B	GOREEN	D	FLOODED		GRESHAM	C	GUCKEEN	C		
GLYNN	C	GORGAS	D	GRANILE	B	GRETDIVID	B	GUDGEL	C		
GLYNWOOD	C	GORGONIO	A	GRANMOUNT	C	GREWINGK	C	GUDGREY	B		
GLYPHS	B	GORHAM	B/D	GRANO	D	GREYBACK	B	GUELPH	B		
GOBAR	B	GORIN	C	GRANSHAW	B	GREYBO	B	GUEMES	B		
GOBERNADOR	D	GORING	C	GRANT	B	GREYBULL	C	GUENOC	C		
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	B	GUGUAK	D		
GODFREY	D	GOSINTA	C	GRAPIT	B	GRIFFITH	D	GUILDER	C		
GODWIN	D	GOSLIN	B	GRASHUL	C	GRIFFY	B	GUISER	B		
GOEMMER	C	GOSNEY	D	GRASMERE	B	GRIFTON	D	GULER	B		
GOESLING	B	GOSPER	B	GRASSNA	B	GRIGSBY	B	GULF	B/D		
GOESSEL	D	GOSPORT	C	GRASSVAL	D	GRIGSTON	B	GULKANA	B		
GOFFPEAK	B	GOSS	B	GRASSVALLEY	D	GRIMM	A	GULNARE	D		
GOGEBIC	B	GOSUMI	D	GRASSY BUTTE	A	GRIMM, STONY	B	GUMBLE	D		
GOL	D	GOTEBO	B	GRASSYCONE	A	GRIMSLEY	B	GUMBOOT	D		
GOL	C	GOTHAM	A	GRAT	D	GRIMSTAD	B	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	B/D	GRINDBROOK	C	GUNDY	C		
GOLDBERG	D	GOTHO, MODERATELY	B	GRAVIER	B	GRINDSTONE	C	GUNLOCK	C		
GOLDENDALE	B	WET		GRAYBERT	B	GRINK	C	GUNN	B		
GOLDFINCH	D	GOTHO, COOL	B	GRAYCALM	A	GRINROD	C	GUNNEL	D		
GOLDHEAD	B/D	GOULDING	D	GRAYFORD	B	GRISDALE	B	GUNSIGHT	B		
GOLDHILL	D	GOULDSBORO	D	GRAYLAND	D	GRISWOLD	B	GUNSONE	D		
GOLDHILL, LOAMY	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	GOWTON	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	B	GROSSWELL	C	GUY	B		
GOLDUST	C	GRACEVILLE	B	GREDGE	D	GROTON	A	GUYAN	C		
GOLDVALE	B	GRADCO	C	GREEN BLUFF	B	GROTTE	B	GUYANDOTTE	B		
GOLDVALE, NONSTONY	C	GRADON	C	GREEN CANYON	B	GROTTO	A	GUYTON	D		
GOLDVEIN	C	GRADY	D	GREEN RIVER	C	GROUSECREEK	B	GWENA	D		
GOLDYKE	D	GRAFEN	B	GREEN RIVER,	B	GROUSEVILLE	C	GWIN	D		
GOLETA	B	GRAFF	D	STRONGLY SALINE		GROVE	A	GWIN, GRAVELLY	C		
GOLIAD	C	GRAHAM	D	GREEN RIVER,	B	GROVECITY	B	GWINLY	D		
GOLLAHER	D	GRAIL	C	FLOODED		GROVENA	B	GWINNETT	B		
GOLSUM	C	GRAINOLA	D	GREENBRAE	C	GROVER	B	GYMER	C		
GOLTRY	A	GRALEY	D	GREENBRIAR	B	GROVETON	B	GYNELLE	A		
GOLVA	B	GRALIC	B	GREENCREEK	B	GROWDEN	C	GYPNEVEE	B		
GOMERY	B	GRAN	C	GREENDALE	B	GROWLER	B	GYSTRUM	C		
GOMEZ	B	GRANATH	B	GREENE	B	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		
GOODING	D	GRANDMORE	B	SUBSTRATUM		GRULLA	D	HACKBERRY	B		
GOODINGTON	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	B	GRUVER	C	HACKWOOD	B		
GOODMAN	B	GRANER	B	GREENLEE	B	GRYGLA	B/D	HADAR	B		
GOODNIGHT	A	GRANGE	C	GREENMAN	C	GSCHWEND	B	HADENCREEK	C		
GOODPASTER	D	GRANGEMONT	C	GREENOUGH	B	GUADALUPE	B	HADES	B		
GOODRICH	B	GRANGEVILLE,	B	GREENSON	C	GUAJE	D	HADLEY	B		
GOODSPRINGS	D	DRAINED, SLOPING		GREENTON	C	GUAM	D	HADSELVILLE	D		
GOODWILL	B	GRANGEVILLE,	C	GREENVILLE	B	GUAMANI	B	HAFLINGER	A		
GOODWIN	B	SALINE-ALKALI,		GREENVINE	D	GUANABANO	C	HAGEN	B		
GOOLAWAY	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		

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

HAGGA, SALINE-ALKALI	C	HANIPOE, BEDROCK SUBSTRATUM	C	HARSHA	B	HAWI	B	HEIMDAL	B
HAGGERTY	B	HANIS	C	HARSLOW	C	HAWICK	A	HEINSAW	C
HAGSTADT	C	HANKINS	C	HARSTINE	C	HAWKEYE	A	HEISETON	B
HAGUE	A	HANKS	B	HARSTON	B	HAWKINS	C	HEISETON, STONY	C
HAIG	C/D	HANKSVILLE	D	HART	D	HAWKSBILL	B	HEISETON, SALINE-ALKALI	C
HAIGHTS	B	HANKSVILLE, NONFLOODED	C	HART CAMP	D	HAWKSNEST	C/D	HEISLER	B
HAIKU	B	HANLON	B	HARTER	C	HAWKSPRINGS	B	HEIST	B
HAILMAN	B	HANLY	A	HARTFORD	A	HAWKSTONE	B	HEITT	C
HAIRE	C	HANNA	B	HARTIG	B	HAWLEY	B	HEIZER	D
HAIRE, BEDROCK SUBSTRATUM	D	HANNAHATCHEE	B	HARTILL	C	HAWSLEY	A	HELDT	C
HAKKER	C	HANNING	B	HARTLAND	B	HAXTUN	B	HELEMANO	B
HALACAN	D	HANO	C	HARTLESS	B	HAYBOURNE	B	HELENA	C
HALAWA	B	HANOVER	C	HARTLETON	B	HAYCRIK	C	HELENDALE	B
HALBERT	D	HANS	C	HARTNIT	C	HAYDEN	B	HELLGATE	B
HALCOTT	C/D	HANSEL	C	HARTSBURG	B/D	HAYESTON	B	HELLMAN	C
HALDER	C	HANSKA	B/D	HARTSELLS	B	HAYESVILLE	B	HELM	D
HALE	D	HANSON	B	HARTSHORN	B	HAYESVILLE, STONY	C	HELMER	C
HALE, DRAINED	C	HANTHO	B	HARTVILLE	C	HAYFIELD	B	HELMER, GRAVELLY SUBSOIL	D
HALEDON	C	HANTZ	D	HARTWELL	D	HAYFORD	C	HELMER, THIN SURFACE	D
HALEIWA	B	HANTZ, DRY	C	HARVARD	B	HAYHOOK	B	HELMER, SEVERELY ERODED	D
HALEY	B	HAP	B	HARVESTER	B	HAYMARKET	D	HELMICK	D
HALF MOON	B	HAPGOOD	B	HARVEY, BEDROCK SUBSTRATUM, DRY	C	HAYMOND	B	HELTER	B
HALFADAY	A	HAPJACK	D	HARWOOD	C	HAYMONT	B	HELVETIA	C
HALFWAY	D	HAPNEY	C	HASKILL	B	HAYNESS	B	HELY	C
HALII	B	HAPPLE	B	HASKINS	C	HAYNIE	B	HEMBRE	B
HALIIMAILE	B	HAPUR	D	HASSEE	D	HAYPRESS	A	HEMCROSS	B
HALL	B	HARAHAN	D	HASSELL	C	HAYRACK	C	HEMINGFORD	B
HALL RANCH	C	HARAHILL	C	HASTINGS	B	HAYSPUR	D	HEMPSTEAD	B
HALLANDALE	B/D	HARANA	B	HAT	C	HAYSUM	B	HENCO	B/D
HALLANDALE, TIDAL	D	HARBORD	B	HATBORO	D	HAYTER	B	HENDERSON	B
HALLCREEK	A	HARCANY	B	HATCH	C	HAYTI	D	HENDON	C
HALLECK	C	HARCO	B	HATCH, GRAVELLY	D	HAYWIRE	C	HENDRICKS	B
HALLECK, GRAVELLY SUBSTRATUM	B	HARCOT	B/D	HATCHERY	C	HAYWOOD	B	HENDY	C
HALLETTSVILLE	D	HARDEMAN	B	HATCHET, OVERBLOWN, THICK SOLUM	B	HAZEL	C	HENEFER	C
HALLISON	C	HARDESTY	B	HATCHET, GRAVELLY	C	HAZELAIR	D	HENHOIT	B
HALLORAN	C	HARDHAT	B	HATCHET, OVERBLOWN	C	HAZEN	B	HENKIN	B
HALSEY	C/D	HARDING	D	HATCHET, COBBLY	C	HAZLEHURST	C	HENLEY	C
HALSO	D	HARDISTER	B	HATCHIE	C	HAZLETON	B	HENLINE	C
HAMACER	A	HARDOL	B	HATERMUS	D	HAZTON	D	HENMEL	C
HAMAKUAPOKO	B	HARDSCRABBLE	D	HATERTON	D	HEADLEY	B	HENNEKE	D
HAMAR	A/D	HARDTRIGGER	B	HATHAWAY	B	HEADQUARTERS	B	HENNEPIN	B
HAMBLEN	C	HARDY	C	HATLEY	C	HEAKE	D	HENNESSY	B
HAMBONE	B	HARGILL	B	HATLIFF	C	HEALDTON	D	HENNEWAY	B
HAMBRIGHT	D	HARGREAVE	C	HATMAKER	C	HEALING	B	HENNEY	B
HAMBURG	B	HARJO	D	HATPEAK	C	HEARNE	C	HENNINGS	B
HAMBY	C	HARKERS	C	HATTIE	C	HEARNE, GRADED	D	HENNINGSEN	C
HAMDEN	B	HARKEY	B	HATTON	C	HEATH	C	HENRIETTA	B/D
HAMEL	C	HARKNESS	C	HATUR	C	HEATHCOAT	C	HENRIEVILLE	B
HAMERLY	C	HARLAN	B	HATWAI	D	HEATLY	A	HENRY	D
HAMILTON	B	HARLEM	C	HAUBSTADT	C	HEATON	A	HENSHAW	C
HAMLET	B	HARLEM, CHANNELED	D	HAUG	B/D	HEBBRONVILLE	B	HENSLEY	D
HAMLIN	B	HARLESTON	C	HAUGAN	B	HEBER	A	HENSON	B
HAMMACK	B	HARLINGEN	D	HAULINGS	D	HEBERT	C	HEPLER	C
HAMMONTON	B	HARLOW	D	HAUNCHEE	D	HEBO	D	HEPPSIE	D
HAMPSHIRE	C	HARMEHL	C	HAUZ	C	HECHTMAN	D	HERAKLE	D
HAMPSON	C	HARMONY	C	HAVALA	B	HECKER	B	HERBERT	B
HAMRE	C/D	HARNEY	B	HAVANA	B	HECKISON	D	HERBMAN	D
HAMRUB	B	HAROL	B	HAVELOCK	B/D	HECLA	A	HERD	C
HAMTAH	C	HARPER	D	HAVEN	B	HECTOR	D	HEREFORD	B
HANA	A	HARPERSVILLE	D	HAVERDAD	B	HEDGE	D	HERITO	C
HANAGITA	D	HARPETH	B	HAVERDAD, MODERATELY SALINE	C	HEDOES	C	HERKIMER	B
HANAKER	C	HARPOLE	B	HAVERHILL	C	HEDOX	C	HERLONG	D
HANALEI	C	HARPS	B/D	HAVERLY	C	HEDRICK	B	HERM	C
HANAMAULU	B	HARPSTER	B/D	HAVERMON	B	HEDSTROM	B	HERMANTOWN	C
HANCEVILLE	B	HARPT	B	HAVERSON	B	HEDVILLE	D	HERMERING	B
HAND	B	HARQUA	C	HAVILAND	B	HEECHEE	B	HERMISTON	B
HANDPAH	D	HARRAH	B	HAVILLAH	B	HEELY	B	HERMON	A
HANDRAN	A	HARRIET	D	HAVINGDON	C	HEESER	B	HERNANDEZ	B
HANDSBORO	D	HARRIMAN	B	HAVRE	B	HEFED	B	HERNDON	B
HANDY	C	HARRIMAN, WET	C	HAVRE, SALINE	C	HEFLIN	B	HERO	B
HANEY	B	HARRINGTON	C	HAVRELON	B	HEGLAR	B	HEROD	D
HANFORD	B	HARRIS	D	HAW	B	HEGNE	D	HERRICK	B
HANGAARD	D	HARRISBURG	C	HAWARDEN	D	HEIDEL	B	HERSH	B
HANGDO	B	HARRISON	B	HAWBAKER	B	HEIDEN	D	HERSHAL	D
HANGTOWN	B	HARRISVILLE	C	HAWDEN	D	HEIDTMAN	C	HERTY	D
HANIPOE	B	HARROUN	D	HAWKEYE	B	HEIGHTS	B/D		
		HARSAN	B	HAWKINS	B	HEIL	D		

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

HESCH	B	HILLSBORO	B	HOLDERMAN	C	HOODVIEW	B	HOWELL	C		
HESPER	B	HILLSDALE	B	HOLDERNESS	C	HOOGDAL	C	HOWLAND	C		
HESPERIA	B	HILLTO	B	HOLDINGFORD	C	HOOKS	B	HOWSON	C		
HESPERUS	B	HILLWOOD	B	HOLDREGE	B	HOOKSAN	A	HOYE	B		
HESSEL	B/D	HILMAR	D	HOLILLIPAH	A	HOOKTON	C	HOYLETON	C		
HESSELBERG	D	HILMAR, DRAINED	B	HOLLAND	B	HOOLEHUA	B	HOYPUS	A		
HESSELTINE	B	HILMOE	C	HOLLANDLAKE	B	HOOLY	C	HOYTVILLE	C/D		
HESSING	B	HILO	A	HOLLINGER	B	HOOPAL	D	HUACHUCA	D		
HESSLAN	C	HILOLO	D	HOLLIS	C/D	HOOPER	D	HUALAPAI	C		
HESSON	C	HILT	B	HOLLISTER	D	HOOPESTON	B	HUB	B		
HETERWA	C	HILTON	B	HOLLOMAN	D	HOOPLITE	D	HUBBARD	A		
HETTINGER	C/D	HINCKLEY	A	HOLLOMEX	B	HOOSAN	B	HUBBARDTON	D		
HEUSSER	C	HINDES	C	HOLLOW	C	HOOSEGOW	B	HUBBELL	B		
HEUVELTON	C	HINESBURG	C	HOLLOWAY	B	HOOSIC	A	HUBERLY	D		
HEWITT	D	HINKER	C	HOLLOWTREE	C	HOOSIERVILLE	C	HUBERT	B		
HEXT	B	HINKLE	D	HOLLY	B/D	HOOSIMBIM	B	HUBLERSBURG	B		
HEYDER	B	HINMAN	C	HOLLY, PONDED	D	HOOT	D	HUCKLEBERRY	C		
HEYDLAUFF	B	HINSDALE	D	HOLLY SPRINGS	D	HOOTEN	D	HUCKLEBERRY, HIGH RAINFALL	B		
HEYTOU	B	HIRAMSBURG	C	HOLLYWELL	B	HOPCO	C				
HEZEL	B	HIRIDGE	D	HOLLYWOOD	D	HOPDRAW	A	HUDNUT	B		
HI VISTA	C	HIRSCHDALE	C	HOLMAN	A	HOPEKA	D	HUDSON	C		
HIARC	C	HISEGA	C	HOLMDEL	C	HOPKINS	B	HUECO	C		
HIBAR	C	HISKEY	B	HOLMES	B	HOPLAND	B	HUEL	A		
HIBBARD	C	HISLE	D	HOLOHAN	B	HOPLEY	B	HUENEME	C		
HIBBING	C	HITCHCOCK	B	HOLOMUA	B	HOPSONVILLE	C	HUENEME, MODERATELY WET	B		
HIBERNIA	C	HITILO	A	HOLOPAW	B/D	HOQUIAM	B				
HIBRITEN	B	HITT	B	HOLOPAW, DEPRESSIONAL	C	HORD	B	HUENEME, DRAINED	B		
HICKMAN	B	HIVAL	D			HOREB	C	HUERFANO	D		
HICKORY	C	HIWAN	D	HOLOPAW, FREQUENTLY FLOODED	D	HOREB, GRAVELLY SUBSTRATUM	B	HUEY	D		
HICKS	B	HIWASSEE	B					HUFFINE	B		
HICKSVILLE	B	HIWOOD	A			HORNELL	D	HUFFMAN	B		
HICKSVILLE, BEDROCK SUBSTRATUM	C	HIXTON	B	HOLSINE	B	HORNING	B	HUFFTON	B		
		HOADLY	C	HOLSTEIN	B	HORNITOS	D	HUGGINS	C		
		HOBACKER	B	HOLSTON	B	HORNSBY	C	HUGHES	B		
HICOTA	B	HOBAN	B	HOLT	B	HORNSVILLE	C	HUGHESVILLE	C		
HIDALGO	B	HOBBS	B	HOLTER	B	HORROCKS	B	HUGO	B		
HIDATSA	B	HOBCAW	D	HOLTLE	B	HORSECAMP	D	HUGUS	B		
HIDEAWAY	D	HOBE	A	HOLTON	C	HORSERIDGE	B	HUGUSTON	D		
HIDEWOOD	B/D	HOBERG	C	HOLTVILLE	C	HORSESHOE	B	HUICHICA	C		
HIERRO	B	HOBIT	C	HOLYOKE	C/D	HORSETHIEF	B	HUICHICA, PONDED	D		
HIGGINS	D	HOBO	D	HOMA	C	HORSLEY	D	HUIKAU	A		
HIGGINSVILLE	C	HOBOG	D	HOME CAMP	C	HORST	B	HUKILL	B		
HIGH GAP	C	HOBONNY	D	HOMELAKE	B	HORTONVILLE	B	HULETT	B		
HIGHAMS	D	HOBSON	C	HOMELAND	C	HOSKIN	C	HULLS	C		
HIGHBANK	C	HOBUCKEN	D	HOMER	B	HOSKINNINI	D	HULLT	B		
HIGHCAMP	B	HOCAR	D	HOMESTAKE	C	HOSLEY	D	HULUA	D		
HIGHFIELD	B	HOCHHEIM	B	HOMESTEAD	B	HOSMER	C	HUM	B		
HIGHHORN	B	HOCKINSON	D	HOMEWOOD	C	HOSSICK	B	HUMACAO	B		
HIGHMORE	B	HOCKINSON,	C	HOMME	C	HOSTAGE	B	HUMATAS	C		
HIGHPOINT	D	MODERATELY WET		HOMME, MODERATELY WET	B	HOT LAKE	C	HUMBARGER	B		
HIGHROCK	D	HOCKINSON, DRAINED	B			HOTAW	C	HUMBIG	C		
HIGHTOWER	C	HOCKLEY	C	HOMOSASSA	D	HOTCREEK	D	HUMBIRD	B		
HIGHWOOD	C	HOCKLEY, GRADED	D	HONAUNAU	C	HOTEL	C	HUMBOLDT	D		
HIHIMANU	B	HODA	C	HONCUT	B	HOTSPRINGS	B	HUMBOLDT, MODERATELY WET, SALINE-ALKALI	B		
HIIBNER	C	HODEDO	C	HONDALE	D	HOUDEK	B				
HIKO PEAK	B	HODENPYL	B	HONDOHO	B	HOUGH	B				
HIKO SPRINGS	B	HODGE	A	HONEOYE	B	HOUGHTON	A/D	HUMBOLDT,	B		
HILAIRE	B	HODGINS	B	HONEYDEW	C	HOUGHTON, PONDED	D	MODERATELY WET, SALINE			
HILAND	B	HODGSON	C	HONEYGROVE	B	HOUGHTONVILLE	C				
HILDEBRECHT	C	HOEHNE	A	HONEYJONES	B	HOUK	C	HUMBOLDT, DRAINED, STRONGLY SALINE	B		
HILDRETH	D	HOFFLAND	D	HONEYVILLE	C	HOULA	B				
HILEA	D	HOFFMANVILLE	C	HONKER	D	HOULKA	D	HUMBOLDT, DRAINED, NONSALINE	B		
HILES	B	HOFFSTADT	B	HONLAK	C	HOURGLASS	B				
HILGER	B	HOFLY	C	HONLAK, DRAINED	B	HOUSE MOUNTAIN	D	HUMBOLDT, MODERATELY WET	B		
HILGRAVE	B	HOGADERO	B	HONLU	B	HOUSER	D				
HILIGHT	D	HOGANSBURG	B	HONN	B	HOUSEROCK	D	HUMBOLDT, DRAINED	B		
HILINE	D	HOGBACK	C	HONOBIA	C	HOUSTAKE	C	HUMDUN	B		
HILLBRICK	D	HOGG	C	HONOKAA	A	HOUSTON	D	HUME	C		
HILLCO	B	HOGMALAT	D	HONOLUA	B	HOUSTON BLACK	D	HUMESTON	C/D		
HILLEMANN	C	HOGRIS	B	HONOMANU	A	HOVDE	D	HUMKER	C		
HILLERY	C	HOH	B	HONONEGAH	A	HOVEN	D	HUMMINGTON	C		
HILLET	B/D	HOHMANN	C	HONOULIULI	B	HOVENWEEP	C	HUMPHREYS	B		
HILLFIELD	B	HOKO	C	HONTAS	B	HOVERT	D	HUMPTULIPS	B		
HILLGATE	D	HOLBORN	C	HONTOON	B/D	HOVEY	C	HUMSKEL	C		
HILLIARD	B	HOLBROOK	B	HONUAULU	A	HOWARD	A	HUN	B		
HILLIARD, MODERATELY WELL DRAINED	C	HOLCOMB	D	HOOD	B	HOWARDSVILLE	A	HUNCHBACK	D		
		HOLDAWAY	D	HOODLE	B	HOWCAN	B	HUNDRAW	D		
		HOLDEN	B	HOODOO	D	HOWCREE	C	HUNEWILL	B		
HILLON	C	HOLDER	B	HOODSPORT	C	HOWE	C	HUNGRY	C		

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

HUNNTON	C	ILDECARE	B	IPISH	C	JACAGUAS	B	JEHEMY	D		
HUNSINGER	B	ILDEFONSO	B	IPSON	B	JACANA	D	JEKLEY	C		
HUNTERS	B	ILES	C	IPSWICH	D	JACEE	C	JELLICO	C		
HUNTERSVILLE	B	ILIFF	C	IRA	C	JACINTO	B	JEMEZ	C		
HUNTIMER	C	ILIILI	D	IRAAN	B	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	B	IRENE	B	JACKMAN	B	JENKS	B		
HUNTROCK	B	ILLER	B	IRETEBA	B	JACKNIFE	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		
HURDS	B	IMA	B	IROCK	C	JACKSON	B	JERAG	D		
HURLBUT	C	IMBLER	B	IRON BLOSSOM	C	JACKTONE	D	JERAULD	D		
HURLEY	D	IMLAY	D	IRON MOUNTAIN	D	JACOB	D	JERICHO	D		
HURRICANE	C	IMMIG	C	IRON RIVER	B	JACOBSEN	D	JEROME	D		
HURRY BACK	B	IMMIGRANT	C	IRONCO	B	JACOBY	C	JERRY	C		
HURRYBACK	B	IMMOKALEE	B/D	IRONDALE	C	JACOT	B	JERRYSLU	C		
HURST	D	IMMOKALEE	D	IRONDYKE	B	JACQUES	C	JERU	B		
HURWAL	B	DEPRESSIONAL		IRONSPRINGS	B	JACQUITH	C	JERVAL	B		
HUSE	D	IMOGENE	D	IRONTON	C	JACRATZ	D	JESBEL	D		
HUSKA	D	IMONIL	B	IROQUOIS	B/D	JACWIN	B	JESSE CAMP	B		
HUSSA	D	IMPACT	A	IRRAWADDY	C	JADIS	B	JESSIETOWN	B		
HUSSA, CLAYEY SUBSTRATUM	C	IMPERIAL	D	IRRIGON	C	JAFA	B	JESSO	C		
		INARAJAN	D	IRSON	D	JAGUEYES	B	JESSUP	C		
HUSSA, MODERATELY WET	C	INARAJAN, STRATIFIED	C	IRVINE	D	JAL	B	JETCOP	D		
				IRVINGTON	C	JALMAR	A	JETSTER	C		
HUSSA, DRAINED	B	SUBSTRATUM		IRWIN	D	JAMES	D	JETT	B		
HUSSELL	B	INAVALE	A	ISAAC	C	JAMES CANYON	C	JEVETS	C		
HUSSMAN	D	INCELL	D	ISABELLA	B	JAMES CANYON,	B	JEWETT	B		
HUSUM	B	INCHAU	C	ISAN	A/D	DRAINED		JIGGS	B		
HUTCHINSON	C	INCHELIUM	B	ISANTI	A/D	JAMESTON	C/D	JIGSAW	C		
HUTCHLEY	D	INCY	A	ISBELL	B	JANISE	C	JILSON	D		
HUTSON	B	INDART	C	ISELLA	B	JANISE, OVERBLOWN,	B	JIM	C		
HUTT	D	INDEX	A	ISHI PISHI	C	DRAINED		JIMBO	B		
HUTTON	D	INDIAHOMA	D	ISHPEMING	A	JANSEN	B	JIMCREEK	C		
HUXLEY	C	INDIAN CREEK	D	ISIDOR	D	JANUDE	B	JIMEK	C		
HUYSINK	B	INDIANO	C	ISKNAT	C	JANUDE, CLAY	C	JIMENEZ	C		
HYALL	C	INDIANOLA	A	ISKNAT, COOL	D	SUBSTRATUM		JIMLAKE	B		
HYANNIS	B	INDIO	B	ISLAND	B	JARAB	D	JIMMERSON	C		
HYAS	B	INDLETON	B	ISLES	D	JARBOE	D	JIMSAGE	B		
HYATTVILLE	C	INDUS	D	ISLES, SLOUGH	A/D	JARDIN	D	JIMTOWN	C		
HYDABURG	D	INEZ	D	ISLOTE	B	JAREALES	D	JIPPER	B		
HYDE	B/D	INFERNAL	D	ISMAY	B	JARITA	C	JIVAS	B		
HYDER	D	INGALLS	B	ISMO	C	JARMILLO	B	JOACHEM	D		
HYDRO	C	INGENIO	B	ISOLDE	A	JAROLA	C	JOB	C		
HYE	B	INGERSOLL	B	ISOM	B	JAROSO	B	JOBOS	C		
HYLOC	D	INGRAM	D	ISTER	C	JARRE	B	JOBPEAK	D		
HYMAS	D	INKLER	B	ISTOKPOGA	B/D	JARRON	D	JOCAL	B		
HYPRAIRIE	B	INKOM	D	ITANO	C	JARVIS	B	JOCITY	B		
HYRUM	B	INKOM, DRAINED	C	ITASCA	B	JASCO	D	JOCITY, LOAMY SURFACE	C		
HYSHAM	D	INKOSR	D	ITAT	B	JASON	D				
HYSHOT	D	INKS	D	ITCA	D	JASPER	B	JOCKO	B		
HYTOP	D	INKSTER	B	ITHACA	C	JAUCAS	A	JODERO	B		
HYZEN	D	INLOW	C	ITMANN	C	JAUCAS, SALINE	C	JOEL	B		
IAD	B	INMACHUK	D	ITME	A	JAURIGA	B	JOEMRE	B		
IBERIA	D	INMAN	C	ITSWOOT	B	JAVA	B	JOENEY	D		
ICARIA	D	INMO	A	IUKA	C	JAWBONE	D	JOES	B		
ICENE	D	INNINGER	C	IVA	C	JAY	C	JOEVAR	B		
ICESLEW	D	INPENDENCE	B	IVAN	B	JAYAR	C	JOHNS	C		
ICHBOD	D	INSAK	D	IVANELL	C	JAYBEE	D	JOHNSBURG	D		
ICHETUCKNEE	D	INSIDERT	C	IVANHOE	D	JAYEL	D	JOHNSON	B		
ICICLE	B	INSKIP	C	IVER	B	JAYEM	B	JOHNSTON	D		
IDA	B	INSULA	D	IVERSEN	C	JAYNES	D	JOHNSTOWN	B		
IDABEL	B	INTERIOR	B	IVES	B	JEAGER	C	JOHNSWOOD	B		
IDAHOME	B	INTON	B	IVES, WET	D	JEAN	A	JOHNTOM	D		
IDAMONT	B	INVERNESS	B	IVIE	A	JEAN LAKE	B	JOICE	D		
IDEE	C	INVERSHIEL	C	IVINS	C	JEANERETTE	D	JOINER	B		
IDLEWILD	D	INVILLE	B	IVYWILD	C	JEBE	B	JOKODOWSKI	D		
IDLEWILD, DRAINED	C	IO	B	IXIAN	C	JEBO	B	JOLAN	C		
IDMON	B	IOLEAU	C	IYERS	D	JEDBURG	C	JOLIET	D		
IGDELL	C	IONA	B	IZAGORA	C	JEDD	C	JOLLY	C		
IGERT	C	IONIA	B	IZAR	D	JEDDITO	C	JONALE	B		
IGNACIO	C	IOSCO	B	IZEE	C	JEDDITO,	B	JONAS	B		
IGO	D	IOSEPA	D	IZO	A	SALINE-ALKALI		JONATHAN	B		
IGUALDAD	D	IOTLA	B	IZOD	D	JEDDO	C/D	JONCA	C		
IHLEN	B	IPAGE	A	IZUSER	B	JEFFERS	B/D	JONDA	B		
IJAM	D	IPANO	C	JABU	B	JEFFERSON	B	JONES	B		
ILACHETOMEL	D	IPAVA	B	JABU, WET	C	JEFFREY	B	JONESVILLE	B		

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

JONNIC	C	KAHANA	B	KAPLAN	D	KEEI	D	KERMIT	A
JOPLIN	C	KAHANUI	D	KAPOO	B	KEEKEE	B	KERNAN	C
JOPPA	B	KAHLER	B	KAPOWSIN	D	KEEL	C	KERR	B
JORAIBI	B	KAHLOTUS	B	KAPTURE	B	KEELDAR	B	KERRDAM	C
JORDAN	D	KAHOLA	B	KAPUHIKANI	D	KEELE	B	KERRFIELD	D
JORGE	B	KAHUA	D	KARAMIN	A	KEELER	B	KERRICK	B
JORNAHAM	B	KAIDERS	B	KARANKAWA	D	KEELINE	B	KERRVILLE	C
JORY	B	KAIKLI	D	KARBANA	C	KEENE	C	KERSHAW	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	KEESEHA	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	D	KEEWATIN	C	KESTERSON	D
JOSLIN	B	KALALOCH	B	KARLSBURG	B	KEG	B	KESWICK	C
JOSSET	C	KALAMA	C	KARLSRUHE	B	KEGEL	D	KETCHLY	B
JOURDANTON	B	KALAMAZOO	B	KARLSTAD	A	KEGEL, DRAINED	C	KETCHUM	B
JOWEC	D	KALAPA	B	KARLUK	D	KEGONSA	B	KETONA	D
JOY	B	KALAUPAPA	D	KARMA	B	KEHAR	D	KETTENBACH	C
JUAB	B	KALEETAN	B	KARNAK	D	KEHENA	C	KETTLE	B
JUANA DIAZ	B	KALEETAN, TILL	C	KARNES	B	KEHOE	B	KETTLEBELLY	B
JUBILEE	D	SUBSTRATUM		KAROC	B	KEIGLEY	B	KETTLEMAN	C
JUBILEE, DRAINED	B	KALIFONSKY	D	KARPP	D	KEISER	B	KETTLEMAN,	B
JUDA	B	KALIGA	B/D	KARRO	B	KEITH	B	GRAVELLY	
JUDD	C	KALIGA, FLOODED	D	KARS	A	KEITHVILLE	C	KETTNER	D
JUDELL	B	KALIHI	D	KARSHNER	D	KEKAHA	B	KEUTERVILLE	B
JUDICE	D	KALISPELL	B	KARTA	C	KEKAKE	D	KEVANTON	C
JUDITH	B	KALKASKA	A	KARTAR	B	KEKAWAKA	B	KEVIN	C
JUDKINS	C	KALLIO	C	KASEBERG	D	KELK	C	KEWACH	C
JUDSON	B	KALMARVILLE	B/D	KASHWITNA	B	KELLER	C	KEWAUNEE	C
JUDY	C	KALMIA	B	KASKI	B	KELLERBUTTE	B	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	KELTYS	B	KEYPORT	C
JULESBURG	B	KAMACK	B	KATHER	C	KELVIN	C	KEYSTONE	A
JULIN	D	KAMAKOA	B	KATO	B/D	KEMAH	D	KEZAN	D
JUMBO	B	KAMAN	D	KATSEANES	D	KEMAN	B	KEZAR	C
JUMPCREEK	C	KAMAOA	B	KATULA	C	KEMMERER	C	KIAKUS	C
JUMPE	B	KAMAOLE	B	KATY	D	KEMOO	B	KIAN	C
JUMPER	C	KAMATO	C	KATYBLAY	B	KEMP	C	KIAWAH	B/D
JUMPMORE	B	KAMAY	D	KAUDER	D	KEMPSVILLE	B	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	KAUPO	A	KENDAIA	C	KICKERVILLE	B
JUNCOS	D	KAMRAR	B	KAUPPI	B	KENDALL	B	KIDD	D
JUNCTION	B	KANACKEY	D	KAVETT	D	KENDALLVILLE	B	KIDDER	B
JUNEAU	B	KANAKA	B	KAVON	B	KENDRICK	A	KIDMAN	B
JUNG	D	KANAPAHA	B/D	KAWAIHAE	C	KENEFICK	B	KIEHL	B
JUNGO	B	KANARANZI	B	KAWAIHAPAI	B	KENESAW	B	KIESEL	C
JUNIPERBUTE	A	KANARRA	D	KAWBAWGAM	C	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	KAYMINE	C	KENNEBEC	B	KIKONI	B
JUNO	A	KANDIK	B	KAYO	B	KENNER	D	KILAGA	C
JUNQUITOS	C	KANDOTA	B	KEAAU	D	KENNEWICK	B	KILARC	D
JUNTURA	D	KANE	B	KEAHUA	B	KENNEY	A	KILAUEA	B
JUPITER	B/D	KANEBREAK	C	KEALAKEKUA	A	KENNEY LAKE	C	KILBURN	B
JURA	D	KANEOHE	B	KEALIA	D	KENO	D	KILCHIS	D
JURVANNAH	C	KANEPUU	B	KEANSBURG	D	KENOMA	D	KILDOR	C
JUSTESEN	C	KANER	A	KEAPL	C	KENOTRAIL	C	KILFOIL	C
JUSTESEN, LOAMY	B	KANG	C	KEARNS	B	KENRAY	A	KILGORE	D
SUBSTRATUM		KANGAS	A	KEARSARGE	B	KENSAL	B	KILKENNY	B
JUSTIN	B	KANID	B	KEATING	C	KENSETT	B	KILLARNEY	C
JUVA	B	KANIKSU	B	KEAUKAHA	D	KENSPUR	B	KILLBUCK	C/D
JUVAN	D	KANIMA	C	KEAWAKAPU	B	KENT	D	KILLDUFF	B
KAALUALU	A	KANKAKEE	B	KEBLER	B	KENUSKY	D	KILLEY	D
KACHEMAK	B	KANLEE	C	KECH	D	KENYON	B	KILLEY, MODERATELY	C
KACHESS	B	KANONA	D	KECKO	B	KEO	B	WET	
KADE	D	KANOSH	C	KECKSROAD	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	KEDRON	C	KEOWNS	B/D	KILMER	C
KAFING	B	KAPAA	B	KEE	B	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

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MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.

Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

KILWINNING	D	KITTITAS	D	KODRA	C	KRESSON	C	LACONNER	C
KIM	B	KITTITAS, DRAINED	C	KOEHLER	C	KREYENHAGEN	B	LACOOCHEE	D
KIM, SALINE	C	KITTREDGE	B	KOELE	B	KRIER	D	LACOSTE	C
KIMAMA	B	KITTSON	C	KOEPKE	B	KRIEST	B	LACOTA	B/D
KIMBALL	D	KIVA	A	KOERLING	C	KRON	D	LACRESCENT	B
KIMBERLINA	B	KIWANIS	B	KOETHER	D	KROTO	B	LACROL	D
KIMBERLY	B	KIZHUYAK	B	KOFA	D	KRUBATE	B	LACY	D
KIMBROUGH	D	KJAR	D	KOFA, SALINE	C	KRUEGER	B	LADD	B
KIMMERLING	D	KLABER	D	KOFFGO	B	KRUM	D	LADELLE	B
KIMO	C	KLABER, DRAINED	C	KOGISH	D	KRUSE	B	LADERLY	C
KIMPER	B	KLADNICK	A	KOHALA	B	KUBE	B	LADNER	D
KINA	D	KLADNICK, STONY	B	KOKAN	A	KUBLER	C	LADOGA	B
KINAN	B	KLAMATH	D	KOKEE	B	KUBLI	D	LADRON	B
KINCHELOE	D	KLANELNEECHENA	D	KOKERNOT	C	KUCERA	B	LADUE	B
KINCO	A	KLANELNEECHENA,	C	KOKO	B	KUCK	C	LADYCOMB	D
KINDER	C	LACUSTRINE		KOKOKAHI	D	KUDLAC	D	LADYSMITH	D
KINDIG	B	SUBSTRATUM		KOKOKAHI, STONY	B	KUHL	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
KINGHORN	D	LACUSTRINE		KOLIN	C	KULLIT	B	LAGNAF	B
KINGILE	C	SUBSTRATUM		KOLLS	D	KULSHAN	C	LAGONDA	C
KINGINGHAM	C	KLAWATTI	C	KOLLUTUK	D	KUMA	B	LAGRANGE	D
KINGMAN	D	KLAWHOP	B	KOLOA	C	KUNATON	D	LAGROSS	A
KINGMONT	B	KLAYENT	C	KOLOB	B	KUNAYOSH	A	LAGUNITA	A
KINGS	D	KLECKNER	C	KOLOB, STONY	C	KUNIA	B	LAGUNITA, WET	C
KINGSBURY	D	KLEINBUSH	C	KOLOKOLO	B	KUNUWEIA	B	LAHAINA	B
KINGSDOWN	B	KLEJ	B	KOLOWOKI	B	KUNZ	B	LAHONTAN	D
KINGSLAND	A/D	KLICKER	C	KOMO	B	KUNZLER	B	LAHRITY	C
KINGSLEY	B	KLICKITAT	B	KONA	D	KUPREANOF	B	LAIDIG	C
KINGSPOINT	B	KLICKSON	B	KONAWA	B	KUPREANOF,	C	LAIDLAW	C
KINGSTON	B	KLINE, COBBLY	B	KONEPT	D	MODERATELY WET		LAIL	C
KINGSVILLE	A/D	KLINE, PROTECTED	C	KONEFT, DRAINED	C	KUREB	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	KONOCTI	C	KURTZ	C	LAJITAS	D
KINKEL, GRAVELLY	B	KLISTAN	B	KONOCTI, STONY	B	KUSHNEAHIN	D	LAKE	A
KINKORA	D	KLONDIKE	D	KONSIL	B	KUSKOKWIM	D	LAKE, CLAYEY	C
KINMAN	C	KLONE	B	KOOLAU	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	B	KUY	A	LAKE JANEE	B
KINSMAN	C	KLOTEN	D	KOOSKIA	C	KVICHAK	B	LAKEFIELD	B
KINSTON	B/D	KLUG	B	KOOTENAI	B	KWEO	A	LAKEHELEN	C
KINTA	D	KLUM	B	KOPIE	D	KYBURZ	B	LAKEHURST	A
KINTON	C	KLUMP	B	KOPPERL	B	KYDAKA	D	LAKELAND	A
KINZEL	B	KLUTINA	B	KOPPES	A	KYDESTEA	D	LAKEMONT	D
KIOMATIA	A	KNAPKE	B	KORCHEA	B	KYLE	D	LAKEPORT	B
KIONA	B	KNAPPA	B	KORENT	C	KYLER	C	LAKESHORE	D
KIOTE	B	KNAPTON	B	KORNMAN	B	KZIN	D	LAKESIDE	B
KIPER	B	KNEELAND	C	KOROPAGO	C	LA BRIER	D	LAKESOL	B
KIPLING	D	KNEP	C	KORONIS	B	LA FARGE	B	LAKETON	C
KIPPEN	A	KNICKERBOCKER	A	KORTTY	B	LA FONDA	B	LAKEVIEW	C
KIPSON	D	KNIESLEY	C	KOSCIUSKO	B	LA GRANDE	C	LAKEWIN	B
KIRBY	A	KNIFFIN	C	KOSETH	B	LA HOGUE	B	LAKEWOOD	A
KIRBYVILLE	B	KNIGHT	B/D	KOSMOS	D	LA LANDE	B	LAKI	B
KIRK	D	KNIK	B	KOSSE	B	LA PALMA	C	LAKIN	A
KIRKENDALL	C	KNIKLIK	B	KOSSUTH	B/D	LA POSTA	B	LAKOA	B
KIRKHAM	C	KNIPPA	C	KOSZTA	B	LA PRAIRIE	B	LAKOMA	D
KIRKLAND	D	KNOB HILL	B	KOTO	D	LA ROSE	B	LAKRIDGE	C
KIRKSEY	C	KNOBTOP	C	KOTZMAN	B	LABENZO	B	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	KOYEN	B	LABKEY	B	LALOS	B
KIRVIN	C	KNOSS	C	KOYNIK	D	LABORCITA	B	LAM	D
KIRVIN, GRADED	D	KNOTT	D	KOYUKUK	B	LABOU	D	LAMA	C
KISATCHIE	D	KNOWLES	B	KRACKLE	B	LABOUNTY	D	LAMANGA	C
KISHONA	B	KNOX	B	KRADE	B	LABRE	B	LAMAR	B
KISHONA, ALKALI	C	KNULL	B	KRAKON	D	LABSHAFT	D	LAMARSH	C
KISRING	C	KNUTSEN	B	KRAM	D	LABU	D	LAMARTINE	C
KISRING, WET	D	KOBAR	C	KRANSKI	B	LABUCK	B	LAMATH	D
KISSICK	C	KOBEH	B	KRANZBURG	B	LACAMAS	D	LAMAWA	B
KISTIRN	B	KOBEL	D	KRATKA	B/D	LACERDA	D	LAMBERT	B
KITCHELL	B	KOCH	D	KRAUSE	B	LACHAPELLA	D	LAMBETH	B
KITCHEN CREEK	B	KOCH, DRAINED	C	KREAMER	C	LACITA	B	LAMBMAN	D
KITI	D	KODAK	B	KREBS	B	LACKAWANNA	C	LAMBRING	B
KITSAP	C	KODAK, NONFLOODED	C	KREM	A	LACKS	C	LAMEDEER	B
KITTEPLL	D	KODIAK	B	KREMLIN	B	LACLEDE	B	LAMINGTON	D

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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	B	LEFOR	B	LEWDLAC	D
LAMONDI	B	LARIOSCAMP	D	LAWEN	B	LEGALL	B	LEWIS	D
LAMONI	C	LARKIN	B	LAWET	B/D	LEGAULT	D	LEWISBERRY	B
LAMONT	B	LARKSON	C	LAWET,	B	LEGGETT	C	LEWISBURG	C
LAMONTA	D	LARMINE	C	SALINE-ALKALI		LEGLER	B	LEWISTON	C
LAMOOSE	D	LAROQUE	B	LAWLER	B	LEGORE	B	LEWISVILLE	B
LAMOTTE	B	LAROSE	D	LAWNDALE	B	LEHEW	C	LEWKALB	C
LAMOURE	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	DEPRESSIONAL		LEHR	B	LEXTON	B
LAMPSHIRE	D	LARSON	D	LAWRENCE	C	LEICESTER	C	LEYBA	B
LAMSON	B/D	LARTON	A	LAWRENCEVILLE	C	LEIDL	C	LEYDEN	C
LANARK	B	LARUE	A	LAWSHE	D	LEIGHCAN	B	LIBBINGS	D
LANCASTER	B	LARUSH	B	LAWSON	C	LEILEHUA	B	LIBEG	B
LANCE	B	LARVIE	D	LAWTHER	D	LEISY	B	LIBERAL	D
LAND	C	LAS	C	LAWTON	C	LELA	D	LIBORY	A
LAND, DRAINED	B	LAS ANIMAS	C	LAWYER	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	LAYOINT	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	LEMOLO	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	LEN	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		LEADVILLE	B	LENAPAH	D	LIGON	D
LANGRELL	B	LATAH, DRAINED	C	LEAF	D	LENAWEE	B/D	LIGURTA	B
LANGSPRING	B	LATAHCO	C	LEAFRIVER	A/D	LENAWEE, PONDED	D	LIHEN	A
LANGSTON	B	LATAHCO, WET	D	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	B	LENZ	B	LILBERT	B
LANIGER, GRAVELLY	C	LATES	C	LEALANDIC	D	LENZ, STONY	C	LILBOURN	B
LANKBUSH	B	LATEX	C	LEANNA	D	LENZ, VERY STONY	C	LILLINGS	B
LANKIN	C	LATHAM	D	LEANTO	D	LENZBURG	B	LILLINGTON	B
LANKTREE	C	LATHER	D	LEAPS	C	LEO	A	LILLYLANDS	C
LANOAK	B	LATHROP	B	LEATHAM	C	LEOLA	B	LILTEN	C
LANONA	B	LATIGO	B	LEATHERMAN	D	LEON	B/D	LILY	B
LANSDALE	B	LATINA	D	LEAVENWORTH	C	LEONARD	D	LIM	C
LANSDOWNE	C	LATIUM	D	LEAVERS	B	LEONARDO	B	LIMA	B
LANSING	B	LATOM	D	LEAVITT	B	LEONARDTOWN	D	LIMBER	B
LANTERN	B	LATONIA	B	LEAVITTVILLE	B	LEONI	B	LIMEKILN	D
LANTIS	B	LATOUCHE	D	LEBAM	B	LEGUIEU	D	LIMERICK	C
LANTON	D	LATOUR	B	LEEANON	C	LERDAL	C	LIMERIDGE	D
LANTON, LOW	C	LATOURELL	B	LEBEAU	D	LERDO	C	LIMKING	B
PRECIPITATION		LATTAS	D	LEBEC	B	LEROY	B	LIMON	C
LANTONIA	B	LATTY	D	LEBO	B	LERROW	C	LIMON, WET	D
LANTRY	B	LAUDERDALE	D	LEBSACK	C	LESHARA	B	LIMONES	B
LANTZ	D	LAUDERHILL	B/D	LECK KILL	B	LESHO	C	LIMPIA	C
LANVER	C	LAUFER	D	LECRAG	D	LESLIE	D	LINCO	B
LANYON	C/D	LAUGENOUR, LOAMY	C	LEDFORD	B	LESON	D	LINCOLN	A
LAP	D	SUBSTRATUM		LEDGEFORK	A	LESPATE	C	LINDAAS	C/D
LAPARITA	C	LAUGENOUR, SILTY	B	LEDMOUNT	D	LESTER	B	LINDALE	C
LAPDUN	B	SUBSTRATUM		LEDOW	B	LESWILL	B	LINDELL	C
LAPED	D	LAUGENOUR, DRAINED	B	LEDRU	D	LETA	C	LINDEN	B
LAPEER	B	LAUGHLIN	C	LEDUB	B	LETCHER	D	LINDER	B
LAPHAM	A	LAUMAIA	B	LEDWITH	B/D	LETHA	C	LINDLEY	C
LAPINE	A	LAUREL	D	LEE	D	LETHENT	D	LINDRITH	B
LAPLATTA	C	LAURELWOOD	B	LEEBENCH	D	LETNEY	A	LINDSIDE	C
LAPON	D	LAUREN	B	LEEDS	C	LETON	D	LINDSTROM	B
LAPORTE	D	LAURENTZEN	B	LEEFIELD	C	LETORT	B	LINDY	C
LAPOSA	C	LAVACREEK	B	LEEKO	C	LETRI	B/D	LINE	B
LAPWAI	B	LAVALLEE	B	LEEKO, WARM	B	LETTIA	B	LINEVILLE	C
LARAND	B	LAVATE	B	LEELANAU	A	LEVASY	C	LINGANORE	B
LARCHMOUNT	B	LAVEAGA	C	LEEMONT	D	LEVELTON	D	LINHART	A
LARDELL	C	LAVEEN	B	LEEPER	D	LEVELTON, DRAINED	C	LININGER	C
LAREDO	B	LAVENTANA	B	LEERAY	D	LEVERETT	C	LINKER	B
LARES	C	LAVERKIN	C	LEESBURG	B	LEVIATHAN	B	LINKUP	D
LARGO	B	LAVIC	B	LEESVILLE	B	LEVY	D	LINKVILLE	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

LINLITHGO	B	LODI	B	LOPEZ	D	LOZANO	B	LYLES	B/D		
LINNE	C	LODICO	D	LOPWASH	B	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		
LINO	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	A	LUBRECHT	C	LYNDEN	B		
LINSLAW	D	LOGGERT	B	LORDSTOWN	C	LUCAS	D	LYNN HAVEN	B/D		
LINT	B	LOGHOUSE	B	LOREAUVILLE	C	LUCE	C	LYNNBOW	D		
LINTON	B	LOGRING	D	LORELLA	D	LUCEDALE	B	LYNNDYL	A		
LINVELDT	B	LOGY	B	LORENA	C	LUCERNE	B	LYNNE	B/D		
LINVILLE	B	LOHLER	C	LORENZO	B	LUCERO	B	LYNNVILLE	C		
LINWELL	C	LOHMILLER	C	LORETTO	B	LUCIEN	C	LYNNWOOD	A		
LINWOOD	A/D	LOHNES	A	LORING	C	LUCILE, MODERATELY	C	LYNX	B		
LIPAN	D	LOHSMAN	D	LORMAN	D	WET		LYNXCREEK	B		
LIPKE	D	LOIRE	B	LORTA	B	LUCILE, DRAINED	B	LYONMAN	B		
LIPPINCOTT	B/D	LOKEN	C	LOS ALAMOS	C	LUCKENBACH	C	LYONS	D		
LIPPITT	C	LOKERN	C	LOS BANOS	C	LUCKIAMUTE	D	LYONSVILLE	B		
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		LOS OSOS	C	LUCKYRICH	B	LYSTAIR	B		
LISBON	B	LOKERN,	D	LOS ROBLES	B	LUCY	A	LYTELL	B		
LISCO	C	SALINE-ALKALI		LOS TANOS	C	LUD	D	LYVILLE	B		
LISCOMB	B	LOKOSEE	B/D	LOSANTVILLE	C	LUDDEN	D	LYX	B		
LISK	B	LOLAK	D	LOSEE	B	LUDINGTON	B	MABANK	D		
LISMAS	D	LOLALITA	B	LOSTBASIN	C	LUDLOW	C	MABEL	C		
LISMORE	B	LOLEKAA	B	LOSTCREEK	B	LUEDERS	C	MABEN	C		
LITCHFIELD	A	LOLETA	C	LOSTINE	B	LUFKIN	D	MABI	D		
LITHGOW	C	LOLITE	D	LOSTPOINT	D	LUGERT	B	MABRAY	D		
LITIMBER	B	LOLO	B	LOSTSPRING	B	LUGOFF	B	MACAR	B		
LITLE	D	LOLON	B	LOSTVALLEY	C	LUHON	B	MACAREENO	D		
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	LOTT	C	LULING	D	MACHETE	C		
LITTLEAXE	B	LOMART	B	LOTUS	C	LULUDE	C	MACHIAS	B		
LITTLEBEAR	B	LOMAX	B	LOTUSPOINT	C	LUMBEE	B/D	MACHUELO	D		
LITTLEJOHN	C	LOMETA	C	LOU	B	LUMBERLY	B	MACK	B		
LITTLENAN	C	LOMILL	D	LOUDEPBACK	C	LUMMER	B	MACK, LOAMY	C		
LITTLETON	B	LOMIRA	B	LOUDON	C	LUMMI	D	SUBSTRATUM			
LITTSAN	C	LOMITAS	D	LOUDONVILLE	C	LUMMI, DRAINED	C	MACKEN	D		
LITZ	C	LOMOINE	D	LOUELLA	B	LUMMUS	C	MACKERRICHER	A		
LIV	D	LOMOND	B	LOUGHBORO	C	LUNA	C	MACKEY	C		
LIVEOAK	B	LONCAR	B	LOUIE	C	LUNDBR	D	MACKSBURG	B		
LIVERMORE	B	LONDO	C	LOUIECREEK	B	LUNDS	C	MACMEAL	B		
LIVIA	D	LONDONDERRY	C/D	LOUIN	D	LUNDY	D	MACOMB	B		
LIVINGSTON	D	LONE	C	LOUISA	B	LUNING	A	MACOMBER	C		
LIVONA	B	LONE ROCK	B	LOUISBURG	B	LUNT	C	MACON	B		
LIZE	B	LONEBEAR	D	LOUP	D	LUPE	B	MADALIN	D		
LIZZANT	B	LONELY	C	LOUPLOUP	B	LUPINTO	B	MADAWASKA	B		
LLANOS	C	LONEPINE	B	LOURDES	C	LUPINTO, SALINE	C	MADDEN	C		
LOARC	B	LONERIDGE	C	LOUSCOT	C	LUPOYOMA	B	MADDOCK	A		
LOBDELL	B	LONESTAR	B	LOUVIERS	D	LUPPINO	D	MADELIA	B/D		
LOBELVILLE	C	LONETREE	A	LOVEJOY	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,	D	LURAY	C/D	MADILL	B		
LOBO	D	LONGJIM	D	ELEVATION>6500		LURNICK	C	MADISON	B		
LOBURN	D	LONGLOIS	B	LOVELL	D	LUSETTI	B	MADONNA	C		
LOCANE	D	LONGMARE	D	LOVELOCK	D	LUSK	C	MADRAK	C		
LOCEY	C	LONGMONT	C	LOVELOCK,	C	LUTA	B	MADRAS	C		
LOCHLOOSA	C	LONGRIE	B	SALINE-ALKALI		LUTAK	B	MADRID	B		
LOCHSA	B	LONGVAL	B	LOVELOCK, DRAINED	C	LUTE	D	MADRONE	C		
LOCKE	B	LONGVIEW	C	LOVEWELL	B	LUTH	C	MADUREZ	B		
LOCKERBY	C	LONIGAN	B	LOVLINE	C	LUTHER	B	MAES	B		
LOCKERBY, COBBLY	D	LONIGAN, COBBLY	C	LOWELL	C	LUTIE	B	MAGALLON	B		
LOCKHART	B	SUBSTRATUM		LOWERCREEK	A	LUTON	D	MAGDALENA	D		
LOCKPORT	B	LONOAK	B	LOWNDES	B	LUTZKELOH	B	MAGGIE	B		
LOCKTON	B	LONNA	B	LOWRY	B	LUVERNE	C	MAGGIN	C		
LOCKWOOD	B	LONOKE	B	LOWS	B/D	LUXOR	D	MAGHILLS	B		
LOCKWOOD, WET	C	LONTI	D	LOWVILLE	B	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	B	LYDICK	B	MAGNET	C		
LODALLEY	D	LOOMIS	D	LOYALTON	D	LYERLY	D	MAGNOR	C		
LODAR	D	LOONY	C	LOYSVILLE	D	LYFORD	C	MAGNUS	C		
LODE	B	LOPER	C	LOZA	D	LYKENS	C	MAGOTHA	D		

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

MAGOTSU	D	MANAWA	C	MARGO	B	MARYSTOWN	C	MAY	B
MAGUAYO	C	MANBURN	D	MARIA	B	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	D	MASCAMP	D	MAYBERRY	D
MAHANA	B	MANDARIN	C	MARICAO	B	MASCARENAS	C	MAYBESO	D
MAHASKA	B	MANDERFIELD	B	MARICOPA	B	MASCHETAH	B	MAYBID	D
MAHOGAN	C	MANDEVILLE	B	MARIETTA	C	MASCOTTE	B/D	MAYDOL	B
MAHONING	D	MANDY	C	MARILLA	C	MASCOTTE,	D	MAYER	B/D
MAHOOSUC	A	MANET	B	MARIMEL	C	DEPRESSIONAL		MAYES	D
MAHTOMEDI	A	MANFRED	D	MARIMEL, DRAINED	B	MASET	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	MANI	C	MARIPO	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	MAYO	B
MAJADA	B	MANITA	C	MARKES	D	MASSACK	C	MAYODAN	B
MAJUBA	C	MANITOWISH	B	MARKESAN	B	MASSACK, DRAINED	B	MAYOWORTH	C
MAKAALAE	B	MANLEY	B	MARKET	D	MASSADONA	D	MAYQUEEN	B
MAKAH	B	MANLIUS	C	MARKEY	A/D	MASSANETTA	B	MAYSDORF	B
MAKALAPA	D	MANN	B/D	MARKHAM	C	MASSANUTTEN	B	MAYSPRINGS	B
MAKAPILI	B	MANNING	B	MARKLAKE	D	MASSBACH	B	MAYTAG	D
MAKAWAO	B	MANOGUE	D	MARKLAND	C	MASSENA	C	MAYTOWN	C
MAKAWELI	B	MANOR	B	MARKLEPASS	D	MASSIE	D	MAYVILLE	B
MAKENA	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	MARLBORO	B	MATAMOROS	C	MAZDALE	B
MAKOTI	B	MANSONIA	B	MARLEAN	B	MATANUSKA	B	MAZOURKA	C
MAL	C	MANTACHIE	C	MARLETTE	B	MATANZAS	B	MAZUMA	B
MALA	B	MANTECA	C	MARLOW	C	MATAPEAKE	B	MC CORT	B
MALABAR	B/D	MANTEO	C/D	MARLTON	C	MATAWAN	C	MCAFEE	C
MALABAR,	D	MANTER	B	MARMARTH	B	MATCHER	A	MCALLEN	B
DEPRESSIONAL		MANTON	B	MARMARTH, COOL	C	MATFIELD	C	MCALLISTER	C
MALABAR,	D	MANU	C	MARNA	C/D	MATGO	D	MCALPIN	C
FREQUENTLY		MANVEL	B	MAROSA	B	MATHENY	B	MCBEE	C
FLOODED		MANVEL, SALINE	C	MAPOTZ	C	MATHERS	B	MCBETH	D
MALABON	C	MANZANAR	C	MARPA	C	MATHERTON	B	MCBETH, SALINE	C
MALACHY	B	MANZANITA	C	MARPLEEN	D	MATHESON	B	MCBETH, DRAINED	C
MALAGA	B	MANZANITA,	B	MARQUETTE	A	MATHIAS	B	MCBIGGAM	C
MALAGA, STONY	A	GRAVELLY		MARQUEZ	C	MATHIS	C	MCBRIDE	B
MALAMA	A	MANZANO	B	MARR	B	MATHISTON	C	MCCAFFERY	A
MALARGO	B	MANZANOLA	C	MARRIOTT	B	MATHON	B	MCCAIN	C
MALAYA	D	MAPLE MOUNTAIN	B	MARROWBONE	C	MATLACHA	C	MCCALEB	B
MALBIS	B	MAPLECREST	B	MARSDEN	B	MATNEFLAT	B	MCCALL	B
MALCOLM	B	MAPLEHILL	C	MARSEILLES	B	MATOY	C	MCCALLY	D
MALDEN	A	MAPLETON	C	MARSELL	B	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	D	MATTAPONI	C	MCCARRAN	B
MALIN	C	MARANA	B	MARSHDALE	D	MATUNUCK	D	MCCARTHY	B
MALJAMAR	B	MARATHON	B	MARSHDALE, DRAINED	C	MAU	C	MCCASH	B
MALLORY	C	MARBLE	A	MARSHFIELD	B/D	MAUBILA	C	MCCLAVE	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	D	MAUGHAN	C	MCCLOUD	C
MALOTERRE	D	CHANNERY		MARTELLA	C	MAUKEY	C	MCCLURE	C
MALOTT	B	MARCADO	D	MARTIN	C	MAUMEE	A/D	MCCOIN	D
MALOY	B	MARCELINAS	D	MARTIN PENA	D	MAUNABO	D	MCCOLL	D
MALPAIS	B	MARCELLON	C	MARTINECK	D	MAUPIN	C	MCCOLLUM	B
MALSTROM	B	MARCETTA	B	MARTINEZ	D	MAUREPAS	D	MCCONNEL	B
MALVERN	C	MARCIAL	D	MARTINI	B	MAURERTOWN	D	MCCONNEL, FLOODED	A
MAMALA	D	MARCLAY	D	MARTINSBURG	B	MAURICE	B	MCCOOK	B
MAMOU	C	MARCOLA	C	MARTINSDALE	B	MAURY	B	MCCORNICK	C
MANAHAA	C	MARCONI	C	MARTINSON	C	MAUVAIS	C	MCCORT	B
MANAHAWKIN	D	MARCOTT	C	MARTINSVILLE	B	MAVCO	C	MCCOY	C
MANANA	C	MARCOU	B	MARTINTON	C	MAVEPICK	C	MCCREE	B
MANARD	D	MARCUM	C	MARTIS	B	MAVIF	B/D	MCCRORY	D
MANARD, GRAVELLY	C	MARCUS	B/D	MARTISCO	B/D	MAWAE	A	MCCROSKET	B
SUBSTRATUM		MARCUSE	D	MARTY	B	MAWER	B	MCCULLOUGH	B
MANASSA	C	MARCY	D	MARUMSCO	C	MAX	B	MCCULLY	C
MANASSAS	B	MARDIN	C	MARVAN	D	MAXCREEK	B/D	MCCUMBER	B
MANASTASH	C	MARENGO	C/D	MARVELL	B	MAXEY	C	MCCUNE	D
MANATEE	B/D	MARESUA	B	MARVIN	C	MAXFIELD	B/D	MCCURDY	C
MANATEE,	D	MARGATE	B/D	MARVYN	B	MAXTON	B	MCCUTCHEN	D
DEPRESSIONAL		MARGERUM	B	MARY	C	MAXVILLE	B	MCDADE	C
MANATEE, FLOODED	D	MARGIE	C	MARYSLAND	B/D	MAXWELL	D	MCDANIEL	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

MCDERMOTT	B	MECKLENBURG	C	MERDEN	D	MIKIM, WET	C	MINNEOSA	B
MCDOLE	B	MECOSTA	A	MEREDITH	B	SUBSTRATUM		MINNEQUA	C
MCDONALD	C	MEDA	B	MERETA	C	MIKKALO	C	MINNETONKA	D
MCDONALDSVILLE	C/D	MEDANO	D	MERGEL	B	MILACA	C	MINNETONKA, SILTY	C/D
MCDUFF	C	MEDARY	C	MERIDIAN	B	MILAN	B	SUBSTRATUM	
MCELMO	C	MEDBURN	B	MERINO	D	MILBURY	C	MINNEWAUKAN	A/D
MCELROY	B	MEDCO	D	MERKEL	B	MILBY	B	MINNIECE	D
MCEWEN	B	MEDFORD	B	MERLIN	D	MILCAN	C	MINNIEPEAK	A
MCFADDEN	B	MEDFRA	D	MERMENTAU	D	MILDRED	C	MINNIEPEAK,	B
MCFAIN	C	MEDICINE	B	MERMILL	B/D	MILES	B	OVERBLOWN,	
MCFARLAND	B	MEDLEY	B	MERNA	B	MILFORD	B/D	GRAVELLY	
MCFAUL	C	MEDLIN	D	MEROS	A	MILHAM	B	MINNIEPEAK,	B
MCGAFFEY	B	MEDOMAK	D	MERRICK	B	MILITARY	B	OVERBLOWN	
MCGARR	C	MEDORA	B	MERRILL	C	MILL HOLLOW	B	MINNIEVILLE	C
MCGARVEY	C	MEDWAY	B	MERRILLAN	C	MILLADORE	C	MINNIMAUD	C
MCGARY	C	MEEGERNOT	B	MERRIMAC	A	MILLARD	B	MINNITH	C
MCGEHEE	C	MEEGERO	B	MERRITT	C	MILLBORO	D	MINNYE	B
MCGILVERY	D	MEEHAN	B	MERRITT, CLAYEY	B	MILLBROOK	B	MINOA	C
MCGINNIS	C	MEEKS	B	SUBSTRATUM,		MILLBURNE	B	MINOCQUA	B/D
MCGINTY	B	MEETEETSE	D	DRAINED		MILLER	D	MINTER	D
MCGIRK	C	MEGALOS	D	MERRITT, DRAINED	B	MILLERLAKE	B	MINTO	C
MCGIRK, LOW	D	MEGGETT	D	MERSHON	C	MILLERLUX	D	MINU	D
PRECIPITATION		MEGONOT	C	MERTON	B	MILLERTON	D	MINVALE	B
MCGOWAN	B	MEGUIN	B	MERTZ	C	MILLERVILLE	A/D	MINVEND	D
MCGRATH	B	MEHLHORN	C	MERWIN	A/D	MILLETT	B	MINWELLS	C
MCGREW	B	MEIKLE	D	MESA	B	MILLGROVE	B/D	MION	D
MCGUFFEY	D	MEISS	D	MESABA	C	MILLHEIM	C	MIPPON	C
MCGUIRE	B	MEKINOCK	D	MESCAL	C	MILLHI	D	MIRABAL	C
MCHENRY	B	MELAKWA	C	MESCALERO	C	MILLHOPPER	A	MIRACLE	C
MCILWAINE	B	MELAND	C	MESEI	D	MILLICH	D	MIRAGE	C
MCINTOSH	B	MELBOURNE	B	MESPUN	A	MILLICOMA	C	MIRAMAR	B
MCINTYRE	B	MELBY	B	MESSER	C	MILLIGAN	C	MIRAND	D
MCIVEY	C	MELD	C	MET	B	MILLING	D	MIRANDA	D
MCKAMIE	D	MELDER	B	METAMORA	B	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
MCKELVIE	A	MELLENTHIN	D	METIGOSHE	B	MILLRACE	B	MIRROR LAKE	A
MCKENNA	D	MELLOR	D	METOLIUS	B	MILLROCK	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	MEXICO	D	MILLSHOLM	D	MISHAK, DRAINED	C
MCKINNEY	C	MELOCHE	D	MEXISPRING	D	MILLSITE	B	MISSION	D
MCKNIGHT	B	MELOLAND	C	MEYSTRE	B	MILLVILLE	B	MISSISQUOI	A
MCLAIN	C	MELROSE	C	MHOON	D	MILLWOOD	D	MISSLER	B
MCLAURIN	B	MELTON	D	MIAMI	B	MILNER	B	MISSOULA	D
MCLEOD	B	MELVILLE	B	MIAMIAN	C	MILOK	B	MITCH	B
MCLOUGHLIN	B	MELVIN	D	MICANOPY	C	MILPITAS	C	MITCH, RARELY	C
MCMEEN	C	MEMALOOSE	C	MICCO	B/D	MILREN	C	FLOODED	
MCMILLE	B	MEMPHIS	B	MICHELSON	B	MILTON	C	MITCHELL	B
MCMULLIN	D	MENAHGA	A	MICHIGAMME	C	MILVAR	C	MITIWANGA	C
MCMURDIE	C	MENARD	B	MICKEY	D	MIMBRES	B	MITKOF	D
MCMURRAY	D	MENASHA	D	MICROY	C	MIMOSA	C	MITKOF, MODERATELY	C
MCMURRAY, DRAINED	C	MENBO	C	MIDAS	C	MINA	B	WET	
MCNARY	D	MENDEBOURE	C	MIDCO	A	MINALOOSA	B	MITRE	C
MCNEAL	B	MENDELTNA	D	MIDDLE	C	MINAM	B	MITRING	C
MCNULL	C	MENDELTNA,	B	MIDDLEBURY	B	MINAT	B	MITTEN	B
MCNULTY	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	MOAB	B
MCQUARRIE	D	MENDI	B	MIDELIGHT	B	MINCO	B	MOAG	D
MCQUEEN	C	MENDOCINO	B	MIDESSA	B	MINDEGO	C	MOAND	D
MCRAE	B	MENDON	B	MIDFORK	B	MINDEN	B	MOAPA	C
MCRAVEN	C	MENDOTA	B	MIDLAND	D	MINE	B	MOAULA	A
MCTAGGART	B	MENEFEE	D	MIDMONT	C	MINEOLA	A	MOBATE	D
MCVEGAS	D	MENFRO	B	MIDNIGHT	D	MINER	D	MOBEETIE	B
MCVICKERS	C	MENLO	D	MIDO	A	MINERAL	C	MOBERG	B
MEAD	D	MENO	C	MIDRAW	D	MINERAL MOUNTAIN	C	MOBL	B
MEADIN	A	MENOKEN	C	MIDVALE	C	MINERSVILLE	B	MOBRIDGE	B
MEADLAND	C	MENOMINEE	A	MIDWAY	D	MINESINGER	C	MOCA	D
MEADOWBROOK	B/D	MENTO	C	MIERHILL	C	MINETA	C	MOCAREY	D
MEADOWCREEK	C	MENTOR	B	MIERUF	B	MINGO	C	MOCHO	B
MEADOWLAKE	C	MENZEL	B	MIESEN	C	MINGUS	D	MOCKLEP	B
MEADOWVILLE	B	MEQUON	C	MIFFLIN	B	MINIDOKA	C	MOCMONT	B
MEANS	C	MER ROUGE	B	MIGEEN	B	MINKLER	D	MOCTILEME	C
MEARES	D	MERCED	D	MIGUEL	D	MINLITH	D	MODA	D
MECAN	B	MERCEDES	D	MIKE	D	MINNEHA	C	MODALE	C
MECHANICSBURG	C	MERCER	C	MIKESELL	C	MINNEISKA	B	MODENA	B
MECKESVILLE	C	MERCEY	C	MIKIM	B	MINNEOPA	B	MODESTO	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

MODJESKA	B	MONTCALM	A	MORTENSON	C	MUIR	B	MYOMA, WET	B
MODKIN	C	MONTE	B	MORTENSON, COBBLY	D	MUIRKIRK	B	MYRA	C
MODOC	C	MONTE CRISTO	D	MORTON	B	MUKILTEO	D	MYRICK	C
MODYON	C	MONTECITO	B	MORVAL	B	MUKILTEO, 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	MOSCOW	C	MULDROW	D	NAALEHU	B
MOEPITZ	B	MONTEOCHA	D	MOSEL	C	MULETT	D	NAALEHU, BEDROCK SUBSTRATUM	C
MOFFAT	B	MONTEOLA	D	MOSES	B	MULGON	B		
MOGG	D	MONTEROSA	D	MOSES, BOULDERY	C	MULHALL	B	NABESNA	D
MOGLIA	C	MONTESA	C	MOSHANNON	B	MULHOLLAND	B	NACHES	B
MOGOLLON	B	MONTEVALLO	D	MOSHEIM	D	MULHOP	D	NACHUSA	B
MOGOTE	C	MONTEZ	B	MOSHER	D	MULKEY	C	NACIMIENTO	C
MOHALL	B	MONTGOMERY	D	MOSHERVILLE	C	MULLICA	C	NACLINA	D
MOHAVE	B	MONTICELLO	B	MOSHUP	C	MULLIG	B	NACOGDOCHES	B
MOHAWK	B	MONTIETH	B	MOSIDA	B	MULLINS	D	NADA	D
MOHOCKEN	C	MONTLID	C	MOSINEE	B	MULLYON	D	NADEAU	B
MOIESE	B	MONTMORENCI	B	MOSLANDER	D	MULSHOE	C	NADINA	D
MOINES	C	MONTNEVA	C	MOSMAN	D	MULSTAY	C	NADRA	D
MOINGONA	B	MONTOSO	B	MOSO	B	MULT	C	NAEGELIN	D
MOJO	C	MONTOUR	D	MOSQUET	D	MULTEY	B	NAFF	B
MOKELUMNE	D	MONTOYA	D	MOSROC	D	MULTNOMAH	B	NAGITSY	C
MOKENA	C	MONTPELLIER	C	MOSSYROCK	B	MULTORPOR	A	NAGLE	B
MOKIAK	B	MONTROSS	C	MOSWELL	D	MUNDAL	C	NAGROM	C
MOKINS	D	MONTVALE	D	MOTA	B	MUNDELEIN	B	NAHA	C
MOKO	D	MONTVERDE	B/D	MOTEN	C	MUNDEN	B	NAHATCHE	C
MOKULEIA	B	MONTWEL	C	MOTLEY	B	MUNDOS	B	NAHMA	B/D
MOLALLA	B	MONTWEL, ALKALI	B	MOTOQUA	D	MUNDT	C	NAHON	D
MOLAND	B	MONUE	B	MOTT	B	MUNI	D	NAHRUB	D
MOLAS	D	MONVERO	A	MOTTLAND	B	MUNISING	B	NAHUNTA	C
MOLCAL	B	MOODY	B	MOTTO	D	MUNJOR	B	NAIWA	B
MOLENA	A	MOOHOO	B	MOTTSVILLE	A	MUNK	C	NAKAI	B
MOLION	D	MOOLACK	A	MOULTON	C	MUNNELL	B	NAKARNA	B
MOLLICY	C	MOONLIGHT	B	MOULTRIE	D	MUNSET	D	NAKINA	B/D
MOLLMAN	B	MOONSHINE	D	MOUND	C	MUNSON	D	NAKNEK	D
MOLLVILLE	D	MOONSTONE	C	MOUNDHAVEN	A	MUNUSCONG	B/D	NAKOCHNA	D
MOLLY	B	MOONVILLE	B	MOUNDPRAIRIE	B/D	MURAD	B	NALAKI	C
MOLOKAI	B	MOOREVILLE	C	MOUNDPRAIRIE, PONDED	D	MURANCH	C	NALDO	B
MOLSON	B	MOOSE RIVER	D			MURDO	B	NALL	D
MOLYNEUX	B	MOOSED	C	MOUNDVILLE	A	MURDOCK	C	NAMBE	B
MOMOLI	B	MOOSELAKE	A/D	MOUNT HOME	B	MUREN	B	NAMELA	C
MONA	B	MOOSHAUNEE	C	MOUNT LUCAS	C	MURNEN	B	NAMEOKI	D
MONACAN	C	MOOSILAUKE	C	MOUNTADAMS	B	MUROC	D	NAMON	B
MONACHE	B	MOPANA	D	MOUNTAINBOY	D	MURPHY	C	NAMUR	D
MONAD	B	MOPANG	B	MOUNTAINBURG	D	MURRIETA	D	NANAMKIN	A
MONADNOCK	B	MOQUAH	B	MOUNTAINEER	C	MURRILL	B	NANCY	B
MONAHANS	B	MORA	C	MOUNTAINVIEW	C	MURTIP	B	NANIAK	D
MONARDA	D	MORADO	C	MOUNTAINVILLE	B	MURVILLE	A/D	NANKIN	C
MONASTERIO	C	MORALES	D	MOUNTMED	D	MUSCATINE	B	NANNY	B
MONAVILLE	B	MORAN	B	MOUNTMED, MODERATELY WET	C	MUSE	C	NANNYTON	B
MONBUTTE	C	MORANCH	B			MUSELLA	B	NANSEMOND	C
MONCHA	B	MORAPOS	C	MOUNTVIEW	B	MUSICK	B	NANSENE	B
MONDAMIN	C	MORD	C	MOUZON	D	MUSINIA	B	NANSEPSEP	C
MONDEY	C	MOREAU	D	MOVILLE	C	MUSKEGO	A/D	NANSUS	D
MONDOVI	B	MOREHEAD	C	MOWATA	D	MUSKEGO, MARSHY	D	NANTAHALA	B
MONEE	D	MOREHOUSE	D	MOWEBA	B	MUSKEGO, CLAY LOAM SUBSTRATUM	D	NANTUCKET	C
MONGAUP	C	MORELAND	D	MOWER	C			NANUM	B
MONICO	C	MORENO	C	MOWICH	D	MUSKELLUNGE	D	NAPA	D
MONIDA	C	MORET	D	MOXEE	D	MUSKINGUM	C	NAPIER	B
MONIERCO	D	MOREY	D	MOYERS	C	MUSKOGEE	C	NAPLENE	B
MONITEAU	C/D	MORFITT	B	MOYERSON	D	MUSOFARE	C	NAPOLEON	A/D
MONITOR	C	MORGALA	C	MOYINA	D	MUSQUIZ	C	NAPPANEE	D
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. HOOD	B	MUSSERHILL	C	NARANJO	C
MONONA	B	MORLEY	C	MT. OLIVE	C	MUSSEY	B/D	NARCISSE	C
MONONGAHELA	C	MORLING	D	MT. VERNON	C	MUSTANG	A/D	NARCOOSSEE	C
MONROE	B	MORMON MESA	D	MUCARA	D	MUTNALA	B	NARD	B
MONROEVILLE	C/D	MOROCCO	B	MUCKALEE	D	MUZZLER	D	NAREL	B
MONSE	B	MORONI	D	MUD SPRINGS	C	MYAKKA	B/D	NARGAR	B
MONSERATE	C	MOROP	C	MUDCO	D	MYAKKA, DEPRESSIONAL	D	NARK	C
MONSERATE, THIN SURFACE	D	MORPH	B/D	MUDLAVIA	B			NARLON	D
		MORRILL	B	MUDRAY	D	MYAKKA, TIDAL	D	NARNETT	B
MONSON	C/D	MORRIS	C	MUES	C	MYATT	D	NARON	B
MONTAGUE	D	MORRISON	B	MUFF	C	MYERS	D	NARRAGANSETT	B
MONTALTO	C	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

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

NASER	B	NEHALEM, FLOODED	C	NEWALBIN, MUCK	D	NIKAL	B	NOONAN	D
NASH	B	NEHAR	B	SUBSTRATUM		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	NEISSENBERG	C	NEWARK, PONDED	D	NILAND	C	NORCAN	C
NASON	C	NEKIA	C	NEWARK, PONDED,	D	NILER	D	NORD	B
NASON, GRAVELLY	B	NEKKEN	B	COOL		NILRAP	B	NORDBY	B
NASS	D	NEKOMA	B	NEWAUKUM	B	NIMBRO	B	NORDEN	B
NASSAU	C	NELDORE	D	NEWAYGO	B	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	B
NATANK	C	NELSCOTT	C	NEWBERN	C	NIMUE	B	NORFORK	D
NATCHEZ	B	NELSE	B	NEWBERRY	C	NINCH	B	NORGE	B
NATCHITOCHES	D	NELSON	C	NEWBON	B	NINEKAR	D	NORGO	D
NATHALE	C	NEMADJI	B	NEWCO	D	NINEMILE	D	NORKA	B
NATHROP	C	NEMAH	D	NEWCOMB	A	NINEPIPE	B	NORKOOL	B
NATHROP, NONSTONY	B	NEMAH, DRAINED	C	NEWDALE	B	NINEVEH	B	NORLAND	B
NATHROP, COBBLY	B	NEMICO	D	NEWELL	B	NINIGRET	B	NORMA	D
NATI	C	NEMOTE	A	NEWELLTON	D	NIOBELL	C	NORMA, DRAINED	C
NATIONAL	B	NEMOURS	C	NEWFIELDS	B	NIOTA	D	NORMANGEE	D
NATKIM	B	NENANA	B	NEWFLAT	D	NIOTAZE	C	NORMANIA	B
NATOMAS	B	NENNO	C	NEWFORK	D	NIPE	B	NOROB	C
NATROY	D	NEOLA	D	NEWFOUND	C	NIPINTUCK	D	NORREST	C
NATURITA	B	NEOTOMA	B	NEWGLARUS	B	NIPPT	B	NORRIS	D
NAUKATI	D	NEPALTO	A	NEWHAN	A	NIPSUM	C	NORRISTON	A
NAUMBURG	C	NEPESTA	B	NEWHOUSE	B	NIRA	B	NORTE	C
NAUVOO	B	NEPHI	C	NEWKIRK	D	NIRAC	C	NORTEZ	C
NAVACA	D	NEPONSET	C	NEWLANDS	B	NIRE	C	NORTH POWDER	C
NAVAJO	D	NEPPEL	B	NEWLANDS, WARM	C	NISENE	B	NORTHBORO	C
NAVAN	D	NEPTUNE	A	NEWLIN	B	NISHNA	C/D	NORTHCASTLE	B
NAVASAN	A	NERESON	B	NEWNAN	C	NISHNA, PONDED	D	NORTHCOTE	C/D
NAVIDAD	B	NESBITT	B	NEWNATA	C	NISHON	D	NORTHDALE	C
NAVINA	B	NESDA	E	NEWPASS	C	NISQUALLY	A	NORTHFIELD	D
NAVO	D	NESHAMINY	B	NEWPORT	C	NISULA	B	NORTHMORE	C
NAWNEY	D	NESHOBA	C	NEWRY	B	NITCHLY	B	NORTHRUP	C
NAWT	D	NESIKA	B	NEWSKAH	B	NITTAW	D	NORTHSTAR	C
NAXING	B	NESIUS	A	NEWSON	A/D	NIU	B	NORTHWATER	B
NAYE	C	NESKAHI	B	NEWSROCK	B	NIULII	C	NORTHWOOD	B/D
NAYPED	B	NESKOWIN	C	NEWSTEAD	C	NIWANA	B	NORTON	C
NAYRIB	D	NESO	D	NEWTON	A/D	NIWOT	C	NORTONVILLE	C
NAZ	B	NESPELEM	C	NEWTONIA	B	NIX	D	NORWELL	C
NAZATON	B	NESS	D	NEWTOWN	C	NIXA	C	NORWICH	D
NEABSCO	C	NESSEL	B	NEWULM	B	NIXON	B	NORWOOD	B
NEBAGO	C	NESTER	C	NEWVIENNA	B	NIXONTON	B	NOSRAC	B
NEBEKER	C	NESTORIA	C/D	NEWVILLE	D	NIZINA	A	NOTAL	D
NEBGEN	D	NESTUCCA	D	NEYGAT	D	NOARK	B	NOTCHEP	B
NEBISH	B	NET	C	NEZ PERCE	C	NOBE	D	NOTI	D
NEBONA	D	NETARTS	B	NGARDMAU	B	NOBLE	B	NOTNED	B
NECANICUM	B	NETCONG	B	NGARDOK	B	NOBLETON	C	NOTSPIER	D
NECESSITY	C	NETO	B	NGATPANG	C	NOBOCO	B	NOTTAWA	B
NECHE	C	NETOMA	B	NGEDEBUS	A	NOBSCOT	A	NOTTER	B
NECONDA	C	NETRAC	A	NGERSUUL	C	NOBUCK	C	NOTUS	C
NECTAR	C	NETTLES	D	NGERUNGOR	D	NOCKEN	C	NOTUS, DRAINED	B
NEDA	C	NETTLETON	C	NIAGARA	C	NODAWAY	B	NOUQUE	D
NEDERLAND	B	NEUBERT	B	NIAPADA	B	NODEN	B	NOVACAN	D
NEEDLE	D	NEUNS	C	NIAPT	E	NODINE	B	NOVARK	B
NEEDLE PEAK	C	NEURALIA	C	NIBBS	B	NOELKE	D	NOVARY	D
NEEDLE PEAK, LOAMY	B	NEURALIA, SANDY	B	NIBLEY	C	NOGAL	C	NOVATO	D
SUBSTRATUM		SUBSTRATUM		NIBSON	D	NOHILI	D	NOVINA	B
NEEDLE PEAK,	B	NEUSKE	B	NICANOR	D	NOKASIPPI	B/D	NOWATA	B
OCCASIONALLY		NEVADANILE	C	NICHOLFLAT	D	NOKAY	C	NOWEN	B/D
FLOODED		NEVADOR	B	NICHOLIA	D	NOKHU	C	NOWOY	B
NEEDLETON	B	NEVARC	C	NICHOLS	B	NOLAM	B	NOYER	B
NEEDLEYE	C	NEVAT	B	NICHOLSON	C	NOLICHUCKY	B	NOYES	C/D
NEEDMORE	C	NEVEE	B	NICHOLVILLE	C	NOLIN	B	NOYO	C
NEELEY	B	NEVERSINK	D	NICKEL	B	NOLO	D	NOYSON	C
NEEN	C	NEVILLE	B	NICKIN	B	NOLTEN	C	NUAHS	B
NEEN, WET	D	NEVILLE, WET	C	NICKSVILLE	C	NOMARA	C	NUBY	D
NEEN, DRAINED	B	NEVIN	B	NICODEMUS	B	NOME	D	NUBY, DRAINED	C
NEENAH	C	NEVINE	B	NICODEMUS, FLOODED	C	NOMIE	B	NUBY, PROTECTED	C
NEER	B	NEVKA	C	NICOLAS	A	NONDALTON	B	NUC	C
NEESES	C	NEVOYER	D	NICOLLET	B	NONOPAHU	D	NUCKOLLS	B
NEESOPAH	B	NEVTAH	C	NIDO	C	NONPAREIL	D	NUCLA	B
NEFF	C	NEVU	C	NIELSEN	D	NOOK	C	NUECES	C
NEGLEY	B	NEW CAMBRIA	C	NIGHTHAWK	B	NOOKACHAMPS	D	NUEVA	B
NEHALEM	B	NEWALBIN	B/D	NIHILL	B	NOOKSACK	C	NUFF	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

NUGENT	A	OCONALUFTEE	B	OLD CAMP	D	OPENLAKE	D	OSAKIS	B
NUKRUM	D	OCONEE	C	OLDENBURG	B	OPEQUON	C	OSBORN	C
NULEY	B	OCONTO	B	OLDHAM	C/D	OPHIR	C	OSBORN, MODERATELY WET	D
NULLIGAN	B	OCOSTA	D	OLDS	D	OPIHIKAO	D		
NUMA	B	OCQUEOC	A	OLDSFERRY	C	OPLIN	C	OSCAR	D
NUNDA	C	OCQUEOC, MODERATELY WET	B	OLDSMAR	B/D	OPPIO	D	OSCURA	C
NUNEMAKER	D	OCRAIG	D	OLDSMAR, DEPRESSIONAL	D	OPPIO, STONY	C	OSGOOD	C
NUNICA	C	OCTAGON	B	OLELO	B	OQUAGA	C	OSHA	B
NUNN	C	OCTAVIA	B	OLENO	D	OQUIN	C	OSHAWA	D
NUNN, MODERATELY WET	B	ODAS	D	OLENTANGY	A/D	ORA	C	OSHKOSH	C
NUNNSTON	C	ODELL	B	OLEQUA	B	ORACLE	D	OSHONE	D
NUPART	D	ODEM	A	OLETE	C	ORAGRAN	D	OSHTEMO	B
NUPPER	D	ODENSON	D	OLEX	B	ORAID	C	OSIER	A/D
NURKEY	B	ODERMOTT	C	OLF	D	ORAN	B	OSITO	C
NUSS	D	ODERMOTT, STONY	B	OLGA	C	ORANGE	D	OSKA	C
NUTALL	D	ODESSA	D	OLI	B	ORANGEBURG	B	OSMUND	B
NUTIVOLI	A	ODIN	C	OLIAGA	C	ORANGEVALE	B	OSO	C
NUTLEY	C	ODNE	D	OLICAL	B	ORCAP	C	OSOBB	D
NUTRAS	C	ODO	B	OLIN	B	ORCAS	D	OSOLL	D
NUTRIOSO	B	ODONNELL	C	OLINDA	B	ORCHARD	B	OSORIDGE	D
NUVALDE	B	OELOP	B	OLIPHANT	B	ORCKY	B	OSOTF	D
NUYOBE	C	OEST	B	OLIVENHAIN	D	ORD	B	OSSIAN	B/D
NYALA	B	OESTERLE	C	OLIVIER	C	ORDNA	D	OSSIPEE	D
NYE	B	OFFENBACHER	C	OLJETO	A	ORDNANCE	C	OST	B
NYJACK	C	OFU	B	OLLEI	D	ORDWAY	D	OSTLER	C
NYMORE	A	OGARTY	C	OLLIERIVAS	D	OREANA	B	OSTRANDER	B
NYSERVA	B	OGEECHEE	B/D	OLMITO	D	OREANNA	B	OSWALD	D
NYSSA	C	OGEMAW	C/D	OLMITZ	B	OREJAS	D	OTANYA	B
NYSSATON	B	OGILVIE	B/D	OLMOS	C	ORELIA	D	OTEEN	C
NYSWONGER	D	OGLALA	B	OLMSTED	B/D	ORELLA	D	OTERO	B
O'BRIEN	B	OGLE	B	OLNES	B	ORENDA	B	OTHELLO	C/D
O'NEILL	B	OGLESBY	D	OLNEY	B	ORENEVA	C	OTISCO	A
OAHE	B	OGRAL	B	OLOAVA	B	ORFORD	B	OTISVILLE	A
OAK GLEN	B	OHACO	C	OLOKUI	D	ORHOOD	D	OTLEY	B
OAK GROVE	B	OHANA	C	OLOMOUNT	C	ORICTO	B	OTOMO	D
OAKALLA	B	OHIA	A	OLOMPALI	D	ORIDIA	D	OTOOLE	C
OAKBORO	C	OHOP	C	OLOT	C	ORIF	A	OTTER	B/D
OAKDALE	B	OHSCOW	B	OLOTANIA	B	ORIGO	B	OTTERHOLT	B
OAKDEN	D	OIDEM	A	OLPE	C	ORINOCO	C	OTTERSON	A
OAKES	B	OJATA	D	OLSON	D	ORIO	B/D	OTTMAR	B
OAKHILL	B	OJIBWAY	C	OLTON	C	ORION	C	OTTOKEE	A
OAKHURST	D	OJITO	C	OLUSTEE	B/D	ORITA	B	OTTOSEN	B
OAKLAND	C	OJITOS	B	OLVIC	B	ORIZABA	C	OTTUMWA	D
OAKLET	C	OKANOGAN	B	OLYMPIC	B	ORIZABA, DRAINED	B	OTWAY	D
OAKLIMETER	C	OKATON	D	OMADI	B	ORLA	B	OTWELL	C
OAKVILLE	A	OKAW	D	OMAK	C	ORLAND	B	OTWIN	C
OAKWOOD	B	OKAY	B	OMEGA	A	ORLANDO	A	OUACHITA	C
OANAPUKA	B	OKEE	B	OMENA	B	ORLIE	C	OUARD	D
OASIS	B	OKEECHOBEE	B/D	OMIO	B	ORMAS	B	OULA	D
OATLANDS	B	OKEELANTA	B/D	OMNI	D	ORMISTON	C	OUPICO	C
OATMAN	B	OKEELANTA, DEPRESSIONAL	D	OMPO	C	ORNBAUN	B	OURAY	B
OATUU	D	OKEELANTA, TIDAL	D	OMSTOTT	C	ORO FINO	B	OUSLEY	C
OBAN	C	OKEELANTA, FLOODED	D	OMULGA	C	ORO GRANDE	D	OUTERKIRK	B
OBANION	C	OKEETEE	D	ONA	E/D	OROGNEN	D	OUTLET	C
OBARO	B	OKEMAH	C	ONAMIA	B	ORONOCO	B	OUTLOOK	D
OBEN	C	OKIOTA	D	ONAQUI	D	OROSE	C	OUTLOOK, DRAINED	C
OBISPO	D	OKLARED	B	ONARGA	B	OROVADA	B	OVALL	C
OBRAST	D	OKLARK	B	ONASON	D	ORPARK	C	OVAN	D
OBRAY	D	OKLAWAHA	B	ONAWA	D	ORPHA	A	OVANDO	A
OBSCURITY	B	OKO	B/D	ONAWAY	B	ORPHANT	D	OVERGAARD	C
OBSERVATION	C	OKO, STONY	D	ONDAWA	B	ORR	B	OVERLAND	C
OBURN	D	OKOBOJI	C	ONECO	B	ORR, GRAVELLY SUBSTRATUM	C	OVERLY	C
OCALA	C	OKOBOJI, PONDED	B/D	ONEIL	C			OVERTON	D
OCAMBEE	C	OKOLONA	D	ONEONTA	B	ORRUB	D	OVIATT	B
OCANA	B	OKOMA	D	ONITA	C	ORRVILLE	C	OVID	C
OCCOQU N	B	OLREEK	D	ONITE	B	OSA	A	OVINA	B
OCCUM	B	OKRIST	B	ONKEYO	D	OSANKA	A	OWEGO	C
OCEANET	D	OKTAHA	B	ONOTA	B	ORSET	B	OWEN CREEK	D
OCEANO	A	OKTIBBEHA	D	ONSLOW	B	ORSINO	A	OWENS	C
OCHEYEDAN	B	OLA	C	ONTARIO	B	ORTEGA	A	OWENTOWN	D
OCHLOCKONEE	B	OLAA	A	ONTEORA	C	ORTELLO	B	OWHI	B
OCHO	D	OLAC	D	ONTKO	D	ORTING	D	OWINZA	B
OCHOCO	C	OLANCHA	B	ONTONAGON	D	ORTIZ	C	OWLCAN	D
OCHOPEE	B/D	OLAND	B	ONYX	B	ORTON	B	OWOSSO	B
OCIE	C	OLANTA	B	OOKALA	A	ORWASH	A	OWSEL	B
OCILLA	C	OLASHES	B	OOSEN	A	ORWET	A/D	OWYHEE	B
OCKLEY	B	OLATHE	D	OPAL	D	ORWIG	B	OXBOW	B
OCOEE	B/D	OLBUT	D	OPELIKA	D	ORWOOD	B	OXCOREL	C
						OSAGE	D		D

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

OXENDINE	D	PALIX	B	PAPALOTE	C	PATIO	C	PELEE	B
OXERINE	C	PALLS	C	PAPINEAU	C	PATIT CREEK	B	PELELIU	D
OXFORD	D	PALM BEACH	A	PAPOOSE	D	PATNA	B	PELHAM	B/D
OXHEAD	B	PALMA	B	PARA	B	PATOS	C	PELIC	D
OXLEY	C	PALMAR	D	PARACHUTE	B	PATOUTVILLE	C	PELION	B/D
OXWALL	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		PATTEE	B	PELONCILLO	D
OZAUKEE	C	DEPRESSIONAL		PARASOL	B	PATTENBURG	B	PELTIER	C
OZETTE	C	PALMICH	B	PARCELAS	D	PATTER	B	PEMBERTON	B
OZIAS	D	PALMS, OVERWASH	A/D	PARCHIN	D	PATTERSON	C	PEMBROKE	B
PAAIKI	B	PALMS, MAAT>50	A/D	PARCHIN, COOL	C	PATTON	B/D	PEMENE	B
PAALOA	B	PALMS, MAAT<50	A/D	PARDALOE	B	PAUL	B	PEMI	C
PAAUHAU	A	PALMS, PONDED	D	PARDEE	D	PAULDING	D	PENA	B
PABLO	D	PALMS, SANDY	A/D	PARDEEVILLE	B	PAULINA	D	PENAPON	B
PACHAPPA	B	SUBSTRATUM		PAREHAT	C	PAULSON	B	PENASCO	D
PACHECO	C	PALMS, GRAVELLY	A/D	PARENT	B/D	PAULVILLE	B	PENCE	B
PACHECO, DRAINED	B	SUBSTRATUM		PARIATO	D	PAUMALU	B	PEND OREILLE	B
PACIFICO	C	PALMYRA	B	PARIETTE	C	PAUNSAUGUNT	D	PENDANT	D
PACK	C	PALO	D	PARISA	C	PAUSANT	B	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	B	PAVER	B	PENDLETON	C
PACKWOOD	D	PALON	B	PARKE	B	PAVILLION	B	PENDPOY	D
PACO	C	PALOPINTO	D	PARKER	B	PAVO	B	PENELAS	D
PACOLET	B	PALOS VERDES	D	PARKFIELD	C	PAVOHROD	B	PENEY	D
PACTOLA	B	PALOUSE	B	PARKHILL	B/D	PAWCATUCK	D	PENGILLY	B/D
PACTOLUS	A	PALSGROVE	B	PARKINSON	B	PAWHUSKA	D	PENGRA	C
PADDOCK	C/D	PALUXY	B	PARKS	B	PAWLING	B	PENINSULA	B
PADEN	C	PAMISON	B	PARKVIEW	B	PAWNEE	D	PENISTAJA	B
PADILLA	C	PAMLICO	D	PARKVILLE	C	PAXICO	B	PENITENTE	B
PADINA	B	PAMOA	B	PARKWOOD	B/D	PAXTON	C	PENLAW	C
PADRES	B	PAMSDEL	C	PARLEYS	B	PAXVILLE	B/D	PENN	C
PADRONES	B	PAMUNKEY	B	PARLIN	C	PAYETTE	B	PENNEKAMP	A
PADUCAH	B	PANA	B	PARLO	B	PAYMASTER	B	PENNELL	D
PADUS	B	PANAEWA	D	PARMELE	C	PAYNE	C	PENNEY	A
PAESL	B	PANAK	B	PARMELOW	C	PAYNECREEK	B	PENNICHUCK	B
PAGARI	B	PANAMA	B	PARMENTER	B	PAYSON	D	PENNSUCO	D
PAGEBROOK	D	PANAMINT	B	PARMLFED	C	PEACHAM	D	PENO	C
PAGINA	C	PANASOFFKEE	C/D	PARNELL	C/D	PEACHLAND	D	PENOYER	B
PAGODA	C	PANCHERI	B	PAROUAT	B	PEARL	B	PENROSE	D
PAGOSA	C	PANDO	B	PARR	B	PEARL HARBOR	D	PENSORE	D
PAGUATE	C	PANDOAH	C	PARRAN	D	PEARSOLL	D	PENTHOUSE	D
PAHAKA	B	PANDORA	B/D	PARRISH	C	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	PARSIPPANY	C/D	PEAWICK	D	PENZANCE	C
POORLY DRAINED		PANGUITCH	B	PARSONS	D	PEBBLEPOINT	C	PEOGA	C
PAHRANGE	C	PANHANDLE	B	PARTLOW	D	PECATONICA	B	PEOH	D
PAHREAH	C	PANHILL	B	PARTOV	D	PECKHAM	C	PEOH, DRAINED	C
PAHROC	D	PANIN	B	PARTRI	C	PECKISH	D	PEOLA	C
PAHRUMP	C	PANIOGUE	B	PARTRIDGE	A	PECOS	D	PEONE	D
PAHSIMEROI	B	PANIOGUE, WET	C	PASAGSHAK	D	PECTURE	B	PEONE, DRAINED	C
PAIA	B	PANITCHEN	B	PASCO	D	PEDCAT	D	PEORIA	D
PAICE	D	PANKY	C	PASCO, DRAINED	C	PEDEE	C	PEOTONE	B/D
PAILO	B	PANMOD	C	PASO SECO	D	PEDERNALES	C	PEPAL	B
PAINESVILLE	C	PANOCHE	B	PASQUETTI	D	PEDIGO	C	PEPOON	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	PANOLA	D	PASQUOTANK	B/D	PEDRO	C	PEQUEA	B
PAJARITO	B	PANOR	B	PASS CANYON	D	PEEBLES	C	PEQUOP	B
PAJUELA	B	PANORAMA	B	PASSAR	C	PEEKO	D	PERALTA	C
PAKA	B	PANOZA	B	PASSCREEK	C	PEEL	C	PERAZZO	B
PAKALA	B	PANSEY	D	PASTERN	D	PEELER	B	PERCETON	B
PAKINI	B	PANTANO	D	PASTIK	C	PEERLESS	B	PERCHAS	D
PALACIOUS	D	PANTEGO	B/D	PASTORIUS	B	PEETZ	A	PERCILLA	D
PALAFOX	C	PANTERA	B	PASTURA	D	PEEVER	C	PERCIVAL	C
PALANUSH	C	PANTHER	D	PATAHA	C	PEEVYWELL	C	PERCOUN	C
PALAPALAI	B	PANTON	D	PATCHIN	D	PEGLEG	C	PERCY	B/D
PALATINE	B	PAOLA	A	PATE	C	PEGLER	D	PERDIN	C
PALAU	B	PAOLI	B	PATELZICK	D	PEGRAM	B	PERELLA	B/D
PALAZZO	C	PAPAA	D	PATENT	C	PEKAY	C	PERELLA,	B
PALBOONE	B	PAPAC	C	PATHEAD	C	PEKIN	C	MODERATELY WET	
PALINOR	C	PAPAGUA	C	PATILLAS	B	PELAHATCHIE	C	PERHAM	B
PALISADE	B	PAPAI	A	PATILO	B	PELAN	B	PERICO	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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
PERMA	B	PIANKESHAW	B	PINGREE	D	PLATTE, CHANNELED	D	POLATIS	C
PERN	B	PIASA	D	PINHOOK	B/D	PLATTVILLE	B	POLAWANA	A/D
PERNITAS	C	PIBLER	D	PINICON	B	PLAYCO	B	POLE	D
PERNOG	D	PICABO	C	PINITOS	B	PLAYER	D	POLECREEK	D
PERNTY	D	PICACHO	C	PINKEL	C	PLAYMOOR	C/D	POLELINE	B
PERQUIMANS	D	PICANTE	D	PINKHAM	A	PLAZA	C	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	PINNOBIE	B	PLEASANT VALE	B	POLKING	D
PERRY	D	PICKETT	C	PINO	C	PLEASANT VIEW	B	POLLARD	C
PERRYPARK	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	POLO, MODERATELY	C
PERSHING	C	PICKTON	A	PINSPRING	C	PLEIOVILLE	C	SLOW PERM	
PERSIS	B	PICKUP	C	PINTAS	B	PLEITO	C	POLO, MODERATE	B
PERT	D	PICKWICK	B	PINTLAR	B	PLEVNA	D	PERMEABILITY	
PERU	C	PICO	B	PINTO	C	PLINCO	B	POLONIO	B
PERVINA	B	PICOSA	C	PINTURA	A	PLITE	B	POLSON	B
PERWICK	C	PIDCOKE	D	PINTWATER	D	PLOME	B	POLUM	B
PESCADERO	D	PIDINEEN	D	PIOCHE	D	PLOVER	C	POMADE	D
PESCAR	C	PIE CREEK	D	PIOPOLIS	C/D	PLUCK	C	POMAN	C
PESHASTIN	B	PIEGON	B	PIPELINE	D	PLUMAS	B	POMAT	C
PESHEKEE	D	PIERIAN	B	PIPER	C	PLUMMER	B/D	POMAT, DRY	B
PESMO	C	PIERKING	D	PIPESTONE	B	PLUSH	B	POMELLO	C
PESMORE	C	PIERPONT	C	PIPPIN	A	PLUTOS	B	POMERENE	C
PESO	C	PIERRE	D	PIRD	B	PLYMOUTH	A	POMFRET	A
PESOWYO	C	PIERSONTE	A	PIRODEL	B	POALL	C	POMO	B
PETACA	D	PIERZ	B	PIROUETTE	D	POARCH	B	POMONA	B/D
PETAL	C	PIETOWN	B	PIRUM	B	POBER	C	POMONA,	D
PETAN	D	PIGTAIL	D	PISGAH	C	POCALLA	A	DEPRESSIONAL	
PETEETNEET	D	PIIHONUA	A	PISHKUN	B	POCAN	B	POMPANO	B/D
PETERMAN	D	PIKE	B	PISMO	D	POCASSET	B	POMPANO,	D
PETERMAN, SANDY	C	PIKEVILLE	B	PIT	D	POCATELLO	B	DEPRESSIONAL	
SUBSTRATUM,		PILABO	B	PITCHER	B	POCATY	D	POMPANO, FLOODED	D
ALKALI		PILCHUCK	C	PITCO	D	POCKER	C	POMPEII	D
PETERS	D	PILCHUCK,	A	PITNEY	C	POCOLA	D	POMPONIO	C
PETERSON	B	PROTECTED		PITTMAN	C	POCOMOKE, PONDED	B/D	POMPTON	B
PETESCREEK, STONY	B	PILINE	D	PITTSFIELD	B	POCOMOKE, DRAINED	B	POMROY	C
PETESCREEK,	C	PILLIKEN	B	PITTSTOWN	C	POCONO	B	PONCA	B
GRAVELLY		PILLOT	B	PITZER	C	PODEN	B	PONCENA	D
PETRIE	D	PILLSBURY	C	PIUTE	D	PODMOR	C	PONCHA	A
PETROLIA	C/D	PILOT PEAK	D	PIVOT	A	PODO	D	PONCIANO	C
PETROS	D	PILOT ROCK	C	PIXLEY	D	PODUNK	B	POND	D
PETSPRING	D	PILOTPEAK	D	PIZENE	B	PODUS	C	POND CREEK	B
PETTICOAT	B	PILTDOWN	B	PLACEDO	D	POE	C	PONDER	D
PETTIGREW	B/D	PILTZ	C	PLACENTIA	D	POGAL	C	PONIL	D
PETTUS	C	PIMA	B	PLACERITOS,	B	POGANEAB	C	PONINA	D
PETTY	B	PIMER	B	SALINE, DRAINED		POGANEAB, CLAYEY	D	PONOZZO	C
PEVETO	A	PINAL	D	PLACERITOS,	C	SUBSTRATUM		PONTO	B
PEWAMO	C/D	PINALENO	B	SALINE-ALKALI		POGANEAB, SALINE	D	PONTOTOC	B
PEYTON	B	PINAMT	B	PLACERITOS,	B	POGANEAB, HIGH	D	PONZER	D
PFEIFFER	B	PINATA	C	MODERATELY WET		RAINFALL		POOCHAM	B
PHAGE	B	PINAVETES	A	PLACERITOS, WET	C	POGANEAB, STRONGLY	D	POOKU	B
PHALANX	B	PINBIT	B	PLACERITOS,	B	SALINE		POOLER	D
PHANTOM	C	PINCHER	C	DRAINED		POGANEAB,	D	POOLEVILLE	C
PHARO	B	PINCHOT	B	PLACID	B/D	FREQUENTLY		POORCAL	B
PHARR	B	PINCKNEY	C	PLACID,	D	FLOODED		POORMA	B
PHEBA	C	PINCONNING	B/D	DEPRESSIONAL		POGANEAB,	D	POOSE	D
PHEENEY	C	PINE FLAT	B	PLACID, FREQUENTLY	D	SALINE-ALKALI		POOTATUCK	B
PHELAN	D	PINEAL	D	FLOODED		POGUE	B	POPASH	D
PHELPS	B	PINEBUTTE	B	PLACITAS	C	POHAKUPU	B	POPE	B
PHERSON	B	PINECREEK	B	PLACK	D	POIN	D	POPHERS	C
PHIFERSON	C	PINEDA	B/D	PLAINBO	A	POINDEXTER	B	POPLE	C/D
PHILBON	D	PINEDA,	D	PLAINFIELD	A	POINSETT	B	POPLIMENTO	C
PHILDER	D	DEPRESSIONAL		PLAISTED	C	POINT	C	POPOSHIA	B
PHILIPPA	C	PINEDALE	B	PLANK	D	POINT ISABEL	C	POPOTOSA	B
PHILIPSBURG	B	PINEGUEST	B	PLANKINTON	D	POISONCREEK	D	POPPLETON	A
PHILLCHER	B	PINEHURST	B	PLANO	B	POJO	C	POQUETTE	A
PHILLIPS	C	PINEISLE	B	PLANTATION	B/D	POJOAQUE	B	POQUITA	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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	PUNOHU	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	PUNTILLA	B	QUITERIA	B	RANCE	C
PORTAGEVILLE	D	PREY	C	PURCELLA	B	QUITMAN	C	RANCHOSECO	D
PORTALES	B	PRICE	B	PURCHES	C	QUIVERA	C	RANDADD	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	C	RABBITEX	B	RANDOLPH	C
PORTHILL	D	PRIM	D	PURNER	D	RABER	C	RANDS	C
PORTIA	C	PRIMEAUX	C	PUROB	D	RABIDEUX	B	RANDSBURG	D
PORTINO	C	PRIMEN	D	PURSLEY	B	RABUN	B	RANGEE	D
PORTLAND	D	PRINGHAR	B	PURVES	D	RACE	B	RANGER	C
PORTMOUNT	B	PRINCETON	B	PUSHMATAHA	C	RACINE	B	RANPUFF	D
PORTNEUF	B	PRINEVILLE	C	PUSTOI	B	RACKER	A	RANSLO	D
PORTOLA	B	PRING	B	PUTNAM	D	RACOMBES	B	RANSOM	B
PORTSMOUTH	B/D	PRINGLE	D	PUTNEY	B	RACOON	C/D	RANSTEIN	B
PORUM	D	PRITCHARD	C	PUTT	C	RAD	B	RANTOUL	D
POSANT	D	PRITCHETT	C	PUTTSTER	C	RAD, LACUSTRINE	C	RAPATEE	D
POSEN	B	PROCHASKA	A/D	PUU OO	A	SUBSTRATUM		RAPELJE	B
POSEY	B	PROCTOR	B	PUU OPAE	B	RAD, FLOODED	C	RAPH	B
POSEYVILLE	C	PROGRESSO	C	PUU PA	A	RADDLE	B	RAPHO	B
POSITAS	D	PROMISE	D	PUU PA, NONSTONY	B	RADER	D	RAPIDAN	B
POSKIN	C	PROMO	D	PUUKALA	D	RADERSBURG	B	RAPLEE	C
POSO	B	PRONG	C	PUUONE	C	RADFORD	B	RAPPAHANNOCK	D
POSOS	C	PROPHETSTOWN	B/D	PUYALLUP	B	RADLEY	B	RAPSON	B
POST	D	PROSPECT	B	PYBURN	D	RADNOR	C	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	B
POTELL	B	PROUT	C	PYRAMID	D	RAGLAN	B	RASILLE	B
POTH	C	PROUTY	C	PYRMONT	D	RAGNAR	B	RASSER	B
POTLATCH	C	PROVIDENCE	C	PYRMONT, BEDROCK	C	RAGNEL	B	RASSET	B
POTOMAC	A	PROVIG	C	SUBSTRATUM		RAGO	C	RASTUS	C
POTOSI	A	PROVO	D	PYWELL	D	RAGPIE	D	RATAKE	D
POTRATZ	C	PROVO BAY	D	QUAFENO	C	RAGSDALE	B/D	RATHBUN	C
POTSDAM	C	PROW	D	QUAKER	C	RAGSDALE, OVERWASH	B	RATHDRUM	B
POTTER	C	PRUDY	B	QUAKERTOWN	C	RAGTOWN	C	RATLAKE	D
POTTINGER	B	PRUE	B	QUAM	B/D	RAHAL	C	RATLEFLAT	B
POTTS	B	PRUITTON	B	QUAMON	A	RAHM	C	RATLIFF	B
POTTSBURG	B/D	PRUNIE	D	QUANAH	B	RAHWORTH	B	RATON	D
POUDRE	D	PRYOR	C	QUANDER	B	RAIL	D	RATSOW	C
POUJADE	D	PSUGA	B	QUANTICO	B	RAILCITY	A	RATTLER	D
POULSBO	D	PTARMIGAN	C	QUARLES	D	RAINBOW	C	RATTO	C
POUNCEY	D	PUAPUA	D	QUARTZBURG	C	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	RAINSBORO	C	RAVALLI	D
POWEEN	C	PUERTECITO	D	QUEALMAN	C	RAINSVILLE	B	RAVALLI, BEDROCK	B
POWELL	C	PUETT	D	QUEALY	D	RAIRDENT	B	SUBSTRATUM	
POWER	B	PUFFER	D	QUEBRADA	C	RAISIO	C	RAVEN	A
POWERLINE	C	PUGET	D	QUEENY	D	RAKANE	C	RAVENDALE	D
POWLEY	D	PUGET, PROTECTED	C	QUEETS	B	RAKE	D	RAVENELL	D
POWMENT	C	PUGSLEY	C	QUEMADO	C	RAKIED	C	RAVENNA	C
POWWAHKEE	B	PUHI	B	QUENZER	D	RALEIGH	D	RAVENSWOOD	C
POWWATKA	C	PUHIMAU	D	QUERC	C	RALLOD	D	RAVIA	C
POY	D	PUICE	C	QUERENCIA	B	RALLS	B	RAVOLA	B
POYGAN	D	PULA	C	QUETICO	D	RALPH	B	RAWAH	C
POYNOR	B	PULANTAT	C	QUICKSELL	C	RALPHSTON	B	RAWE	C
POZO	C	PULASKI	B	QUICKSILVER	D	RALSEN	D	RAWLES	B
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
PREACHER	B	PULTNEY	C	QUILLAYUTE	B	RAMONA	B	RAYMONDVILLE	D
PREAKNESS	B/D	PUMEL	D	QUILOTOSA	D	RAMONA, HARD	C	RAYNE	B
PREATORSON	B	PUMEL, NONGRAVELLY	C	QUILT	D	SUBSTRATUM		RAYNESFORD	B
PREBISH	C/D	PUMPER	B	QUIMA	B	RAMPART	B	RAYNHAM	C
PREBLE	D	PUNA	A	QUINCY	A	RAMPARTER	B	RAYNOLDSON	B
PRELO	B	PUNALUU	D	QUINLAN	C	RAMPS	B	RAYOHILL	C

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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	B
RAZOR	C	REDTOM	B	RENSSELAER	B/D	RIDDLES	B	RITTER	B
RAZORBA	B	REDVALE	C	RENSSELAER,	C	RIDENBAUGH	D	RITTMAN	C
RAZORT	B	REDVIEW	B	NONSTRATIFIED		RIDGE	B	RITZ	D
RAZSUN	D	REDVIEW, WET	C	SUBSTRATUM		RIDGEBURY	C	RITZ, 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	B	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	C	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	A	REWARD	B	RIGOLETTE	C	ROANHIDE	C
REDARROW	D	REGGEAR	D	REXBURG	B	RILEY	B	ROANOKE	D
REDBANK	B	REGGEAR, COOL	C	REXFORD	C	RILLA	B	ROARING	B
REDBELL	B	REGNAPS	C	REXMONT	D	RILLINO	B	ROB ROY	C
REDBIRD	B	REGNIER	D	REXOR	A	RILLITO	B	ROBANA	B
REDBOW	C	REHBURG	C	REYAB	B	RIMER	C	ROBBS	D
REDBY	B	REHFIELD	B	REYES	D	RIMINI	A	ROBCO	C
REDCAMERON	D	REHFIELD	C	REYNOSA	B	RIMROCK	D	ROBFR	C
REDCAN	D	REHM	C	REYWAT	D	RIMTON	C	ROBERTSDALE	C
REDCAP	B	REICESS	B	REZAVE	D	RIN	B	ROBERTSVILLE	D
REDCHIEF	C	REICHEL	B	RHAME	B	RINCON	C	ROBIN	B
REDCLIFF	C	REIFF	B	RHEA	B	RINDA	D	ROBINETTE	B
REDCLOUD	B	REILLY	A	RHINEBECK	D	RINDGE	D	ROBINSONVILLE	B
REDCO	D	REINA	D	RHOADES	D	RINDGE, DRAINED	C	ROBOZO	C
REDCREEK	D	REINACH	B	RHOAME	C	RINEARSON	B	ROBROOST	B
REDDALE	D	REINER	B	RHOAMETT	C	RINEY	B	ROBSON	D
REDDICK	B/D	REKOP	D	RHOAMETT, STONY	D	RING	C	ROBY	C
REDDING	D	RELAN	B	RHONE	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	C
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	RICEBORO	B/D	RIO	D	ROCIO	C
REDHOUSE	B	RELUCTAN	C	RICECROSS	B	RIO ARRIBA	D	ROCK CREEK	D
REDIG	B	REMBERT	D	RICERT	B	RIO DIABLO	C	ROCK RIVER	B
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	REMMIT	B	RICH, WET	D	RIOBLANCHO	C	ROCKCASTLE	D
REDLODGE	D	REMNOY	D	RICHARDSON	B	RIOCONCHO	C	ROCKDALE	A
REDMANSON	B	REMOTE	B	RICHENS	C	RIOLINDA	C	ROCKDALE	B
REDMOND	C	REMSEN	D	RICHEY	C	RION	B	ROCKERS	C
REDMOUNT	B	REMUNDA	C	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	RENFROW	D	RICHTER	B	RIPON	B	ROCKLY	D
REDONDO	B	RENICK	D	RICHVALE	B	RIPPLE	B	ROCKOA	B
REDPOP	C	RENISH	C	RICHVIEW	C	RIPPOWAM	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	RODAD	D
REDSPRINGS	B	RENOHILL	C	RICKMORE	C	RISWOLD	B	RODELL	D
REDSPRINGS, GRADED	D	RENOL	C	RICKREALL	D	RITA	D	RODEO	D
REDSTOE	B	RENOVA	B	RICKS	A	RITCHEY	D	RODESSA	D

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

RODIE	B	ROSENDALE	C	RUBY	B	SABENYO	B	SAMINIEGO	C
RODMAN	A	ROSENWALL	D	RUBYHILL	C	SABINA	C	SAMISH	D
RODROF	D	ROSEVILLE	B	RUCH	B	SABINE	A	SAMMAMISH	D
ROEBUCK	D	ROSEWOOD	A/D	RUCKER	B	SABLE	B/D	SAMOIST	D
ROELLEN	D	ROSEWOOD, WET	D	RUCKLES	D	SAC	B	SAMOR	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	RUDDLEY	D	SACO	D	SAMSIL	D
ROGAN	B	DRAINED		RUDEEN	C	SACRAMENTO	D	SAMSULA	B/D
ROGERSON	D	ROSHOLT	B	RUDYARD	D	SACTUS	D	SAN ANDREAS	B
ROGERT	D	ROSINE	B	RUEDLOFF	B	SACUL	C	SAN ANTON	B
ROGRUBE	B	ROSITAS	A	RUELLA	B	SADDLE	C	SAN ANTONIO	C
ROGUE	B	ROSITAS, CLAYEY	C	RUFUS	D	SADDLEBACK	C/D	SAN ARCACIO	C
ROHAN	D	SUBSTRATUM		RUGAR	C	SADDLEGAP	B	SAN BENITO	B
ROHNERVILLE	B	ROSITAS, LOAMY,	C	RUGG	B	SADDLEROCK	D	SAN EMIGDIO	B
ROHONDA	C	WET		RUGLES	F	SADER	D	SAN GERMAN	D
ROHRERSVILLE	D	ROSITAS, WET	C	RUHF	D	SADIE	C	SAN ISABEL	A
ROIC	D	ROSLYN	B	RUIDOSO	C	SADLER	C	SAN JOAQUIN	D
ROJO	C	ROSMAN	B	RUINPOINT	B	SAFFELL	B	SAN JON	C
ROLETTE	C	ROSNEY	B	RUIZ	A	SAG	B	SAN JOSE	B
ROLFE	C	ROSS	B	RUKO	D	SAGANING	A/D	SAN JUAN	A
ROLIE	D	ROSSBURG	B	RULE	B	SAGASER	B	SAN LUIS	C
ROLISS	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
ROLOC	D	ROSWELL	A	RUNLEY	B	SAGEHILL	B	SAN SEBASTIAN	B
ROLOFF	C	ROSY	B	RUNNEY	C	SAGEMOOR	B	SAN SIMEON	D
ROMBERG	B	ROTAMER	B	RUMPAH	D	SAGERS	B	SAN TIMOTEO	C
ROMBO	C	ROTAN	C	RUMPLE	C	SAGERTON	C	SAN YSIDRO	D
ROME	B	ROTHICAN	B	RUMUNG	C	SAGLE	C	SANCHEZ	D
ROMEO	D	ROTHIEMAY	C	RUNE	C	SAGO	D	SANCLEMENTE	D
ROMERO	D	ROTHSAY	B	RUNEBERG	C/D	SAGOUSPE	C	SANDALL	C
ROMGAN	C	ROTINOM	F	RUNGE	F	SAGOUSPE, DRAINED	B	SANDBRANCH	B
ROMIA	B	ROTO	C	RUNN	D	SAGUACHE	B	SANDCREEK	D
ROMINE	B	ROTTULEE	C	RUPLE	C	SAHALIE	B	SANDERSON	B
ROMINELL	C	ROUBIDEAU	C	RUPLEY	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
ROMULUS	D	ROUGHLOCK	B	RUSE	D	SAILBOAT	C	SANDOVAL	D
RONAN	D	ROUGHMOUNT	C	RUSH	B	SAILBOAT, DRAINED	B	SANDRIDGE	A
ROND	C	ROUND BUTTE	D	RUSHMORE	B/D	SAIPAN	B	SANDSPRING	B
RONDEAU	A/D	ROUNDABOUT	C	RUSHTOWN	A	SAL	D	SANDUN	B
RONDELL	B	ROUNDBARN	E	RUSHVILLE	D	SALADAR	D	SANDUSKY	D
RONDOWA	B	ROUNDHEAD	B/D	RUSO	B	SALADON	D	SANDVIEW	F
RONNEBY	C	ROUNDOR	C	RUSON	C	SALAL	C	SANDWASH	C
RONSEL	B	ROUNDTOP	C	RUSS	F	SALAMATOF	D	SANDWICK	B
RONSON	B	ROUNDUP	C	RUSSELL	B	SALANDER	B	SANELI	D
ROONEY	D	ROUNDY	C	RUSSIAN	E	SALAS	C	SANFORD	B
ROOSET	C	ROUSSEAU	A	RUSSLER	C	SALCHAKET	B	SANGER	D
ROOSEVELT	C	ROUTON	D	RUSTICO	F	SALCO	B	SANGO	C
ROOT	B/D	ROUTT	C	RUSTIGATE	C	SALEM	B	SANHEDRIN	B
ROOTEL	C	ROVAL	D	RUSTON	F	SALERATUS	C	SANIBEL	B/D
ROPER	B/D	ROWDEN	C	RUSTY	B	SALERNO	B/D	SANILAC	B
ROSALIE	B	ROWDY	B	RUTAB	B	SALGA	C	SANJE	B
ROSAMOND	B	ROWE	D	RUTERSVILLE	C	SALIDA	A	SANLOREN	B
ROSAMOND,	C	ROWEL	D	RUTHERFORD	C	SALINAS	B	SANPETE	B
SALINE-ALKALI,		ROWENA	C	RUTLAND	C	SALISBURY	C	SANPITCH	C
FLOODED		ROWLAND	C	RUTLEGE	B/D	SALIX	B	SANPOIL	D
ROSANE	D	ROWLEY	C	RYAN	D	SALKUM	F	SANSARC	D
ROSANKY	C	ROXAL	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
ROSCOMMON	A/D	ROXER	B	RYDE	C	SALMON	B	SANTA ISABEL	D
ROSE CREEK	C	ROXTON	D	RYDER	C	SALONIE	D	SANTA LUCIA	C
ROSE CREEK,	B	ROY	B	RYDOLPH	C	SALT CHUCK	A	SANTA MARTA	C
DRAINED		ROYAL	B	RYEGATE	C	SALT LAKE	D	SANTA YNEZ	D
ROSE VALLEY	D	ROYCE	C	RYELL	B	SALTAIR	D	SANTANA	D
ROSEBERRY	D	ROYGORGE	D	RYELL, SALINE	D	SALTER	B	SANTANELA	D
ROSEBLOOM	D	ROYOSA	A	RYEPATCH	C	SALTERY	D	SANTAQUIN	A
ROSEBOROUGH	B	ROYST	C	RYER	C	SALTESE	D	SANTAROSA	F
ROSEBUD	B	ROYSTONE	F	RYKER	B	SALTINE	C	SANTEE	D
ROSEBURG	B	ROZA	C	RYMAN	C	SALTON	D	SANTIAGO	B
ROSEDHU	B/D	ROZELLVILLE	B	RYORP	C	SALUDA	C	SANTIAM	C
ROSEGLEN	B	ROZETTA	B	RYPOC	B	SALVISA	C	SANTO	B
ROSEHAVEN	B	ROZLEE	C	RYUS	B	SALZER	D	SANTO TOMAS	B
ROSEHILL	D	RUARK	B/D	SAAR	C	SALZER, PROTECTED	C	SANTONI	D
ROSELAND	B	RUBICON	A	SABANA	D	SAMBA	D	SANWELL	B
ROSELLA	D	RUBIO	C/D	SABANA SECA	D	SAMBRITO	B	SAPEHA	B
ROSELMS	D	RUBSON	B	SABE	B	SAMDAY	D	SAPELO	D

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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	C	SHALAKO	D		
SARAGOSA	B	SAYBROOK	B	SCOTTCAS	B	SELBIT	B	SHALBA	D		
SARAHSVILLE	D	SAYDAB	C	SCOTTIES	B	SELDEN	C	SHALCAR	D		
SARALEGUI	B	SAYERS	A	SCOTTSVILLE	C	SELEVIN	D	SHALCAR, DRAINED	C		
SARANAC	C/D	SAYLES	D	SCOUT	B	SELFRIDGE	B	SHALCLEAV	D		
SARANAC, GRAVELLY SUBSTRATUM	C	SAYLESVILLE	C	SCRABBLERS	B	SELIA	C	SHALET	D		
		SAYNER	A	SCRANTON	A/D	SELIGMAN	D	SHALONA	B		
SARAPH	D	SAYPO	C	SCRAVO	B	SELKIRK	C	SHALPER	D		
SARATON	C	SAZI	C	SCRIBA	C	SELLE	B	SHAM	D		
SARAZAN	B	SCALA	B	SCRIBNER	C	SELLERS	B/D	SHAMBO	B		
SARBEN	B	SCALADE	D	SCRIVER	B	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	B	SEMIAHMOO	D	SHANGHAI	C		
SARITA	A	SCAPONIA	B	SEAFORTH	B	SEMIAHMOO, DRAINED	C	SHANGHAI, DRAINED	B		
SARKAR	D	SCAR	B	SEAGATE	A/D	SEMINOLE	D	SHANKLER	A		
SARNOSA	B	SCARBORO	D	SEAGOVILLE	D	SEMPER	C	SHAND	B		
SARONA	B	SCARIBOU	B	SEALY	B	SEN	B	SHANTA	B		
SARPY	A	SCARPER	C	SEAMAN	B	SENCHERT	C	SHARATIN	B		
SARTELL	A	SCATLAKE	D	SEAMAN, STRONGLY SALINE	C	SENECAVILLE	B	SHARESNOUT	C		
SARUCHE	D	SCAVE	C			SENSABAUGH	B	SHARKEY	D		
SASABE	C	SCHAFFENAKER	A	SEAMAN, MODERATELY WET	C	SEQUATCHIE	B	SHARLAND	B		
SASALAGUAN	C	SCHALLER	A			SEQUIM	A	SHARON	B		
SASCO	B	SCHAMBER	A	SEAQUEST	C	SEQUOIA	C	SHARONDALE	B		
SASKA	B	SCHAMP	C	SEAP	B	SERDEN	A	SHARPS	C		
SASPAMCO	B	SCHAPVILLE	C	SEARING	B	SERENE	C	SHARPSBURG	B		
SASSAFRAS	B	SCHATTEL	C	SEARLA	B	SEROCO	A	SHARROTT	D		
SASSER	B	SCHAUSON	B	SEARLES	C	SERPEN	C	SHARVANA	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	SERRAND	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	C	SHATTUCK	B		
SATSOP	B	SCHNIPPER	C	SEAWILLOW	B	SESSUM	D	SHAUSON	B		
SATT	C	SCHNOORSON	C	SEBAGO	D	SET	C	SHAVANO	B		
SATTLEY	B	SCHNORBUSH	B	SEBASTIAN	D	SETH	C	SHAVASH	C		
SATTRE	B	SCHODSON	C	SEBASTOPOL	C	SETTERS	D	SHAVER	B		
SATURN	B	SCHOENS	A	SEBEWA	B/D	SETTLEMENT	D	SHAWA	B		
SATUS	B	SCHOFIELD	C	SEBREE	D	SETTLEMEYER	C	SHAWANO	A		
SAUCEL	D	SCHOHARIE	C	SEBRING	B/D	SETTLEMEYER,	D	SHAWMUT	B		
SAUCIER	C	SCHOLLE	B	SEBUD	B	SALINE-ALKALI		SHAY	D		
SAUDE	B	SCHOODIC	D	SECCA	C	SETTLEMEYER,	D	SHAYLA	D		
SAUGATUCK	C	SCHOOLCRAFT	B	SECESH	B	FLOODED		SHEAR	C		
SAUGUS	B	SCHOOLEY	D	SECONDSET	C	SETTLEMEYER, COOL	D	SHEAVILLE	D		
SAUK	B	SCHOOLEY, DRAINED	C	SECRET CREEK	B	SETTLEMEYER,	B	SHEBANG	D		
SAULICH	D	SCHOOLEY,	C	SECURITY	C	CHANNELED		SHEBEON	C		
SAUM	B	PROTECTED		SED	C	SEVAL	C	SHEDADO	C		
SAUNDERS	D	SCHOOLHOUSE	D	SEDALE	D	SEVENMILE	B	SHEDD	C		
SAURIN	C	SCHOONER	D	SEDGEFIELD	C	SEVERN	B	SHEDHORN	D		
SAUTER	B	SCHRADER	D	SEDGWAY	B	SEVIER	D	SHEECAL	B		
SAUVIE	D	SCHRAP	D	SEDILLO	B	SEVILLE	D	SHEEGE	D		
SAUVIE, MODERATELY WET	C	SCHRIER	B	SEDMAR	D	SEVY	B	SHEEK	B		
		SCHROCK	B	SEDROWOOLLEY	C	SEWANEE	B	SHEEP CREEK	C		
SAUVIE, PROTECTED	B	SCHROON	B	SEDWELL	C	SEWARD	B	SHEEPCAN	B		
SAUVOLA	C	SCHUELKE	C	SEEDSKADEE	D	SEWELL	C	SHEEPHEAD	C		
SAUZ	B	SCHULINE	B	SEELEZ	A	SEXTON	C/D	SHEEPROCK	A		
SAVAGE	C	SCHUMACHER	B	SEELOVERS	C	SEYMOUR	D	SHEEPSCOT	B		
SAVAGETON	D	SCHUSTER	B	SEELYEVILLE	A/D	SEZNA	D	SHEETIRON	C		
SAVANNAH	C	SCHUYLER	B	SEELYEVILLE, SLOPING	D	SHAAK	C	SHEFFIELD	D		
SAVENAC	C	SCIO	B			SHABLISS	D	SHEFFIT	D		
SAVO	C	SCIOTOVILLE	C	SEEPRID	B	SHACK	B	SHEFFLEIN	B		
SAVOIA	B	SCISM	C	SEES	C	SHADELAND	C	SHELBIANA	B		
SAVONA	C	SCITICO	C	SEEWEE	B	SHADELEAF	C	SHELBURNE	C		
SAWABE	D	SCITUATE	C	SEFFNER	C	SHADOW	B	SHELBY	B		
SAWATCH	B/D	SCLOME	B	SEGIDAL	D	SHADYGROVE	C	SHELBYVILLE	B		
SAWBUCK	B	SCOAP	B	SEGNO	C	SHAFFTON	B	SHELD	B		
SAWCREEK	C	SCOBEY	C	SEGUIN	B	SHAFTER	D	SHELL	B		
SAWDUST	B	SCOGGIN	D	SEGURA	D	SHAGEL	D	SHELLABARGER	B		
SAWMILL	B/D	SCOON	D	SEHOME	C	SHAGNASTY	C	SHELLBLUFF	B		
SAWTELL	C	SCOOTENEY	B	SEHORN	D	SHAKAMAK	C	SHELLCREEK	C		
SAWTELPEAK	D	SCORUP	C	SEIS	C	SHAKAN	C	SHELLDRAKE	A		

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

SHELLROCK	A	SHOTGUN	C	SIMON	B	SKYHIGH	C	SNOWDANCE,	C
SHELMADINE	D	SHOTWELL	D	SIMONA	D	SKYKOMISH	B	MODERATELY WET	
SHELOCTA	B	SHOUNS	B	SIMONIN	B	SKYLICK	B	SNOWDON	D
SHELTON	C	SHOWALTER	C	SIMONTON	B	SKYLINE	D	SNOWLIN	B
SHENA	D	SHOWALTER, STONY	B	SIMPARK	D	SKYMOR	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	SIMS	D	SKYWAY	B	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	SINGATSE	D	SLAGLE	C	SOAPLAKE	D
SHEPSTER	D	SHUBUTA	C	SINGERTON	B	SLAPJACK	B	SOAR	D
SHERANDO	B	SHUE	C	SINGLETREE	C	SLATERY	C	SOBEGA	C
SHERAR	C	SHUKASH	A	SINGSAAS	B	SLAUGHTER	C	SOBOBA	A
SHERBURNE	C	SHUKSAN	C	SINKER	C	SLAUGHTERVILLE	B	SOBOL	C
SHERIDAN	B	SHULE	C	SINKSON	B	SLAVEN	C	SOBRANTE	B
SHERLESS	B	SHULLSBURG	C	SINLOC	C	SLAW	C	SOBSON	C
SHERLOCK	B	SHUMLA	C	SINNICE	B	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	SIOUX	A	SLIDELL	D	SODASPRING	B
SHERWOOD	B	SI	C	SIOUXON	B	SLIGHTS	C	SODERVILLE	A
SHEVLIN	C	SIBELIA	B	SIPPLE	B	SLIGTING	C	SODHOUSE	D
SHIDLER	D	SIBLEY	B	SIPSEY	B	SLIKOK	D	SODUS	C
SHIELDS	C	SIBLEYVILLE	B	SIPSRAK	A	SLIMBUTTE	B	SOELBERG	B
SHIFFER	C	SICKLES	B/D	SIRI	B	SLINGER	B	SOEN	C
SHILLY	C	SICKLESTEETS	B	SIROCO	C	SLIPBACK	B	SOFIA	C
SHILOH	B/D	SIDDOWAY	A	SIRREF	D	SLIPMAN	B	SOFTSCRABBLE	C
SHIMA	C	SIDELL	B	SIRRETTA	C	SLOAN	B/D	SOFTSCRABBLE,	B
SHIMMON	C	SIDLAKE	C	SISK	C	SLOCAVE	D	RARELY FLOODED	
SHINAKU	D	SIDON	C	SISKIYOU	B	SLOCUM	C	SOGI	C
SHINGARA	D	SIEBEN	B	SISSETON	B	SLUICE	C	SOGN	D
SHINDLER	C	SIEBERT	A	SISSON	B	SLUKA	C	SOGO	B
SHINER	C	SIECHE	C	SISTERS	A	SLY	B	SOGZIE	B
SHINGLE	D	SIELO	D	SITAR	B	SMACKOUT	B	SOHAPPY	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	B	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	SKAGIT	D	SMILEYVILLE	D	SOLIER	D
SHIPLEY,	C	SIGURD	B	SKAGWAY	C	SMILO	C	SOLIS	C
SALINE-ALKALI		SIKESTON	B/D	SKAHA	A	SMITHBORO	D	SOLLEKS	C
SHIPPA	D	SILAS	B	SKALAN	C	SMITHDALE	B	SOLLER	D
SHIPROCK	B	SILAS, WET	C	SKAMANIA	B	SMITHNECK	C	SOLO	C
SHIPS	D	SILAS, GRAVELLY	C	SKAMO	C	SMITHNECK, DRAINED	B	SOLOMON	D
SHIPSHE	B	SUBSTRATUM		SKANEE	C	SMITHTON	D	SOLONA	C
SHIRK	C	SILAWA	B	SKANID	D	SMITHVILLE	B	SOLWAY	B
SHIRLEY	B	SILCOX	B	SKATE	B	SMITHWICK	D	SOMBORDORO	D
SHIRO	C	SILENT	D	SKEDADDLE	D	SMOCREEK	C	SOMBRERO	C
SHIRTTAIL	B	SILEP	B	SKEIN	D	SMOKEY	C	SOMERS	B
SHIVELY	B	SILERTON	B	SKELLOCK	B	SMOLAN	C	SOMERVELL	B
SHIVIGNY	B	SILHOUETTE	C	SKELON	C	SMYRNA	B/D	SOMSEN	C
SHIVLUM	B	SILI	C	SKELTON	B	SNAG	B	SONAHNPIL	B
SHOALS	C	SILKIE	D	SKERRY	C	SNAHOPISH	B	SONDOA	B
SHOAT	D	SILSTID	A	SKIPO	B	SNAKE	C	SONLET	D
SHOBA	D	SILVA	C	SKIDMORE	B	SNAKE HOLLOW	A	SONOCAN	C
SHOEPEG	C	SILVER	C	SKINNER	B	SNAKELUM	B	SONOITA	B
SHOESTRING	B	SILVER CREEK	D	SKIPANON	B	SNAKER	D	SONOMA	C
SHOKEN	D	SILVERADO	B	SKIPOPA	D	SNAPP	C	SONOMA, MODERATELY	B
SHONKIN	D	SILVERBELL	C	SKIYOU	B	SNEAD	D	WET, SALINE	
SHONTIK	C	SILVERBOW	D	SKOKOMISH	D	SNEFFELS	C	SONOMA, SALINE,	B
SHOOFLIN	D	SILVERCHIEF	C	SKOKOMISH, DRAINED	C	SNELL	C	DRAINED	
SHOOFLY	D	SILVERCLIFF	B	SKOLY	B	SNELLING	B	SONOMA, STRATIFIED	D
SHOOK	C	SILVERDALE	A	SKOOKUM	C	SNELLMAN	B	SUBSTRATUM	
SHOOKER	C	SILVERN	A	SKOS	D	SNIDER	C	SONOMA, DRAINED,	B
SHOREEK	C	SILVERTON	C	SKOWHEGAN	B	SNOHOMISH	D	SLIGHTLY SALINE	
SHOREWOOD	C	SILVIES	D	SKULL CREEK	C	SNOMO	C	SONOMA, DRAINED,	B
SHORIM	C	SIMAS	C	SKULLGULCH	C	SNOOK	D	FLOODED	
SHORT CREEK	C	SIMCOE	C	SKULLWAK	D	SNOPOC	B	SONOMA, DRAINED	B
SHORTCUT	C	SIMEON	A	SKUMPAH	D	SNOQUALMIE	C	SONORA	B
SHORTHORN	D	SIMERDI	B	SKUTUM	C	SNOTOWN	B	SONTAG	D
SHORTYORK	C	SIMMONT	C	SKYBERG	C	SNOW	B	SOOLAKE	B
SHOSHONE	C	SIMODA	C	SKYHAVEN	C	SNOWDANCE	D	SOONAHBE	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

SOONAKER	C	SPINEKOP	B	STABLER	B	STEUBER	B	STRELNA, SILTY	B		
SOOSAP	C	SPINEKOP, SALINE	C	STADY	B	STEVENS	B	SUBSTRATUM			
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	STAMFORD	D	STILES	C	STROM	C		
SOSTIEN	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	D	STROUPE	C		
SOUTHACE	B	SPLITRO	D	STANDUP	B	STILSKIN	C	STROZI	C		
SOUTHAM	D	SPLITTOP	C	STANEY	D	STILSON	B	STRYCH	B		
SOUTHFORK	D	SPOFFORD	D	STANFIELD	C	STIMCA	B	STRYKER	C		
SOUTHGATE	D	SPOFMORE	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	STAPALOOP	B	STINGDORN	D	STUDEBAKER	B		
SOWCAN	B	SPOOL	D	STAPLES	B/D	STIPE	C	STUKEL	D		
SOWCAN, SOMEWHAT	C	SPOONER	C/D	STAPLETON	B	STIRK	D	STUMBLE	A		
POORLY DRAINED		SPOTSYLVANIA	C	STAPP	C	STIRRUP	B	STUMPP	D		
SPAA	D	SPOTTSWOOD	B	STARBUCK	D	STIRUM	B/D	STUMPTOWN	B		
SPACE CITY	A	SPRABAT	B	STARGO	B	STIRUM, PONDED	D	STUNNER	B		
SPADE	B	SPRAY	B	STARHOPE	D	STISSING	C	STUNTZ	C		
SPADRA	B	SPRECKELS	C	STARICHKOF	D	STIVERSVILLE	B	STURGEON	B		
SPAGER	D	SPRIGGS	C	STARKEY	C	STOCKADE	B/D	STURGILL	D		
SPALDING	D	SPRING	C	STARKS	C	STOCKBRIDGE	C	STURKIE	B		
SPANA	D	SPRINGDALE	A	STARLEY	D	STOCKEL	D	STUTTGART	D		
SPANAWAY	A	SPRINGDALE, STONY	B	STARMAN	D	STOCKLAND	B	STUTZMAN	C		
SPANEL	D	SPRINGER	B	STARR	C	STOCKPEN	D	STUTZMAN, WET	D		
SPANG	B	SPRINGERVILLE	D	STARVEOUT	B	STODA	B	STUTZVILLE	C		
SPANGENBURG	C	SPRINGFIELD	D	STASER	B	STODICK	D	STYERS	D		
SPANGENBURG,	D	SPRINGGULCH	B	STATE	B	STOHLMAN	D	STYX	B		
PONDED		SPRINGLAKE	A	STATELINE	D	STOKES	D	SUAK	C		
SPANGLER	C	SPRINGMEYER	B	STATLER	B	STOKLY	B	SUBACO	D		
SPARANK	D	SPRINGSTEEN	C	STATZ	D	STOMAR	C	SUBLETTE	B		
SPARHAM	D	SPRINGWATER	C	STAVELY	B	STONEBERGER	D	SUBLIGNA	B		
SPARKHULE	D	SPROUL	D	STAYTON	D	STONEBURG	B	SUBWELL	B		
SPARMO	B	SPRUCEDALE	D	STEARNS	D	STONEHAM	B	SUCARNOOCHEE	D		
SPARR	C	SPUD	C	STECOAH	B	STONEHEAD	C	SUCCESS	A		
SPARTA, SILTY CLAY	B	SPUDROCK	C	STECUM	C	STONELICK	B	SUCCOR	D		
LOAM SUBSTRATUM		SPUKWUSH	B	STEED	A	STONELL	B	SUCHES	B		
SPARTA, LOAMY	A	SPUR	B	STEEDMAN	D	STONER	B	SUDBURY	B		
SUBSTRATUM		SPURGER	C	STEEDMAN, STONY	C	STONEVILLE	B	SUDDUTH	C		
SPARTA, MAAT>50	A	SPURLOCK	B	STEEKEE	C	STONEWALL	C	SUDLEY	B		
SPARTA, MAAT<50	A	SQUALICUM	B	STEELE	C	STONEWELL	A	SUDWORTH	B		
SPARTA, BEDROCK	A	SQUALLY	B	STEENS	C	STONO	B/D	SUEPERT	C		
SUBSTRATUM		SQUAW	B	STEEPCAN	D	STONYFORD	D	SUEY	B		
SPASPREY	C	SQUAWCREEK	D	STEESE	B	STOOKMOOR	C	SUFFIELD	C		
SPEAKER	C	SQUAWROCK	C	STEEVER	B	STORDEN	B	SUFFOLK	B		
SPEAKS	A	SQUAWTIP	C	STEFF	C	STORLA	B	SUGAKOOL	B		
SPEARFISH	D	SQUIRES	C	STEGALL	C	STORMITT	B	SUGARBOWL	B		
SPEARHEAD	B	ST. ALBANS	B	STEIGER	A	STOTT	C	SUGARDEE	B		
SPEARMAN	B	ST. ANTHONY	B	STEILACOOM	C	STOUGH	C	SUGARLOAF	B		
SPEARVILLE	C	ST. AUGUSTINE	C	STEINAUER	B	STOUT	D	SUGLO	B		
SPECIE	B	ST. AUGUSTINE,	B	STEINBECK	B	STOVHO	C	SUISUN	D		
SPECK	D	ORGANIC		STEINSBURG	C	STOWE	C	SULA	B		
SPECTACLE	C	SUBSTRATUM		STEIWER	C	STOWELL	D	SULLIVAN	B		
SPECTER	C	ST. CHARLES	B	STELLA	C	STOY	C	SULLY	B		
SPEELYAI	D	ST. CLAIR	D	STELLAR	C	STRABER	C	SULOAF	B		
SPEER	B	ST. ELMO	A	STEMBER	C	STRAHAN	B	SULPHURA	D		
SPEIGLE	B	ST. GEORGE	B	STEMILT	B	STRAIGHT	C	SULSAVAR	B		
SPENARD	D	ST. GEORGE, SALINE	C	STEMLEY	C	STRANDLINE	B	SULTAN	C		
SPENCER	B	ST. GEORGE, WET	D	STEMPLE	B	STRANDQUIST	B/D	SUMAN	B/D		
SPENLO	B	ST. HELENS	B	STENDAL	C	STRAT	B	SUMAS	D		
SPENS	A	ST. IGNACE	D	STEPHEN	C	STRATFORD	B	SUMATRA	B		
SPERRY	C/D	ST. JOHNS	B/D	STEPHENVILLE	B	STRATTON	C	SUMINE	C		
SPEXARTH	C	ST. JOHNS,	D	STEPROCK	B	STRAW	B	SUMMERFIELD	D		
SPHINX	D	DEPRESSIONAL		STEPSTONE	B	STRAWN	B	SUMMERS	B		
SPICER	B/D	ST. LUCIE	A	STEPTOE	B	STREATOR	B/D	SUMMERTON	B		
SPICERTON	D	ST. MARTIN	D	STERLING	B	STRELNA	C	SUMMERVILLE	D		
SPICEWOOD	C	ST. MARYS	B	STERLINGTON	B	STRELNA,	B	SUMMIT	C		
SPIKE	B	ST. NICHOLAS	D	STERRETT	D	LACUSTRINE		SUMMITVILLE	C		
SPILLCO	B	ST. ONGE	B	STETSON	B	SUBSTRATUM		SUMPF	D		
SPILLVILLE	B	ST. PAUL	B	STETTER	D	STRELNA, TILL	B	SUMTER	C		
SPILOCK	D	ST. THOMAS	D	STEUBEN	B	SUBSTRATUM		SUMTERVILLE	C		

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

SUMYA	D	SWANTOWN	D	TACOMA	D	TANQUE	B	TEHAMA	C
SUN	D	SWANVILLE	C	TACONIC	C/D	TANSEM	B	TEHRAN	A
SUNAPEE	B	SWANWICK	D	TACOOSH	B/D	TANTALUS	B	TEIGEN	C
SUNBURG	B	SWAPPS	C	TADLOCK	B	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	B	TAHKENITCH	B	TAPPAN	B/D	STONY	
SUNDOWN	A	SWEEN	C	TAHOMA	B	TARA	B	TELA	B
SUNEV	B	SWEENEY	B	TAHOULA	D	TARBORO	A	TELCHER	B
SUNFIELD	B	SWEET	C	TAHQUATS	B	TARGHEE	C	TELECAN	B
SUNLIGHT	D	SWEETAPPLE	B	TAINTOR	C/D	TARKINGTON	C	TELEFOND	C
SUNNYHAY	D	SWEETGRASS	B	TAJO	C	TARKIO	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	TAKPOCHAO	D	TARNAV	B	TELFERNER	D
SUNSET	B	SWENODA	B	TALAG	D	TARPLEY	D	TELL	B
SUNSHINE	C	SWIFT	B	TALAMANTES	B	TARR	A	TELLER	B
SUNSWEET	C	SWIFT CREEK	B	TALANTE	D	TARRANT	D	TELLICO	B
SUNUP	D	SWIFTON	B	TALAPUS	B	TARRETE	D	TELLMAN	B
SUNY	D	SWIMLEY	C	TALBOTT	C	TARRYALL	C	TELLURA	C
SUOMI	C	SWIMS	B	TALCO	D	TARRYTOWN	C	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		TALKEETNA	B	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	B
SURFSIDE	D	SWISBOR	D	TALLEYVILLE	B	TATERHEAP	B	TEMVIK	B
SURGEM	C	SWISSHELM	E	TALLOWBOX	C	TATIYEE	C	TENABO	D
SURGH	B	SWISSTAG	B	TALLS	B	TATLUM	D	TENAHA	B
SURNUF	B	SWISSVALE	D	TALLULA	B	TATOUCHE	B	TENAS	C
SURPLUS	C	SWITCHBACK	C	TALLY	B	TATTON	D	TENCEE	D
SURPRISE	B	SWITZERLAND	B	TALMAGE	B	TATUM	B	TENDOY	D
SURRENCY	D	SWOPE	C	TALMO	A	TAUNTON	C	TENERIFFE	A
SURRETT	C	SWORMVILLE	C	TALMOON	D	TAVARES	A	TENEX	B
SURVEYORS	B	SWYGERT	C	TALOKA	D	TAWAH	B	TENINO	C
SURVYA	C	SYBLON	D	TALPA	D	TAWAS	A/D	TENMILE	C
SUSANNA	C/D	SYCAMORE,	B	TALQUIN	B/D	TAWCAW	C	TENNO	D
SUSANVILLE	D	MODERATELY WET,		TALUCE	D	TAYLOR	C	TENORIO	B
SUSIE CREEK	C	SALINE		TAMA	B	TAYLOR CREEK	C	TENOT	C
SUSITNA	B	SYCAMORE,	C	TAMAHA	D	TAYLORSFLAT	B	TENPIN	D
SUSQUEHANNA	D	MODERATELY WET,		TAMALCO	D	TAYLORSFLAT,	C	TENRAG	B
SUTA	B	CLAYEY SUBSTRATUM		TAMALPAIS	C	SALINE-ALKALI		TENSAS	D
SUTCLIFF	B	SYCAMORE,	C	TAMANEEN	B	TAYLORSVILLE	C	TENSED	C
SUTHER	C	MODERATELY WET		TAMBA	D	TAZLINA	A	TENSLEEP	B
SUTHERLAND	D	SYCAMORE, DRAINED	B	TAMELY	B	TEAGULF	C	TENSNOIR	B
SUTHERLIN	C	SYCAMORE, FLOODED	C	TAMFLAT	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	B
SUTPHEN	D	SYCAN	A	TAMMING	B	TEANAWAY	B	TEPETE	D
SUTRO	C	SYCLE	B	TAMP	B	TEAPO	C	TEQUESTA	B/D
SUTTLER	B	SYCOLINE	D	TAMPICO	B	TEASDALE	B	TERADA	B
SUTTON	B	SYENITE	C	TANAMA	D	TEASPOON	D	TERBIES	B
SUVER	D	SYLACAUGA	D	TANANA	D	TEBAY	B	TERENCE	B
SUWANEE	B	SYLCO	C	TANANA, THAWED	B	TEBBS	B	TERESA	D
SVEA	B	SYLVAN	B	TANANA, MODERATELY	C	TEBO	B	TERIND	D
SVENSEN	B	SYLVANIAM	C	WET		TECHADO	D	TERLAN	D
SVERDRUP	B	SYLVESTER	B	TANASEE	B	TECHICK	B	TERLCO	B
SWAGER	C	SYLVIA	C	TANAZZA	B	TECO	B	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	B	TANEUM	B	TECOPA	D	TEROMOTE	B
SWALESILVER	D	SYRACUSE	B	TANEY	C	TEDROW	B	TEROUGE	D
SWAMPYDRAW	B	SYRENE	B/D	TANGAIR	C	TEEL	B	TERRA CEIA	B/D
SWAN	D	SYRETT	C	TANGI	C	TEELER	B	TERRA CEIA, TIDAL	D
SWANBOY	D	TABECHEDING	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	TEEWINOT	D	TERRAD	C
SWANSEA	D	TABOR	D	TANNER, LOW	D	TEFTON	C	TERRETON	D
SWANSON	C	TACAN	B	PRECIPITATION		TEGURO	D	TERRETON, STONY	C
SWANTON	C/D	TACHI	D	TANDB	B	TEHACHAPI	C	TERRIL	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

TERRO	C	THURLONI	C	TINTON	A	TOLTEC	C	TORSIDO	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
TESAJO	B	THWOOP	C	TIPPAH	C	TOMAHAWK	A	TOSSER	B
TESSFIVE	D	TIAGOS	B	TIPPECANOE	B	TOMALES	D	TOSTON	C
TETHRICK	B	TIAK	C	TIPPER	C	TOMASAKI	C	TOTAVI	A
TETON	C	TIBAN	B	TIPPERARY	A	TOMAST	C	TOTELAKE	B
TETONIA	B	TIBBITTS	B	TIPPIPAH	B	TOMBAF	C	TOTEM	B
TETONKA	C/D	TIBS	C	TIPPO	C	TOMBSTONE	B	TOTIER	C
TETONVIEW	D	TIBSON	B	TIPTON	B	TOME	B	TOTO	B/D
TETONVILLE	D	TIBURONES	D	TIPTONVILLE	B	TOMEL	D	TOTTEN	C/D
TETONVILLE, GRAVELLY	C	TICA	D	TIPTOP	B	TOMERA	C	TOUCHET	C
		TICE	B	TIRO	C	TOMERA, CEMENTED SUBSTRATUM	D	TOUHEY	B
TETOTUM	C	TICELL	D	TISBURY	B			TOULA	C
TEVIS	B	TICHNOR	D	TISCH	D	TOMICHI	A	TOULON	B
TEW	C	TICIND	C	TISDALE	C	TOMOKA	B/D	TOURN	C
TEWA	B	TICKAPOO	D	TISHAR	B	TOMOTLEY	B/D	TOURNQUIST	B
TEX	B	TICKASON	B	TISONIA	D	TOMS	C	TOURS	B
TEXANA	D	TIDINGS	B	TISWORTH	C	TOMSHERRY	C	TOUTLE	A
TEXARK	D	TIDWELL	D	TITUS	B/D	TOMTY	D	TOUTLE, FLOODED	B
TEXLINE	B	TIERRA	D	TITUSVILLE	C	TONALEA	C	TOVAR	C
TEXROY	B	TIERRANEGRE	B	TIVOLI	A	TONASKET	B	TOWAVE	B
TEZUMA	C	TIESIDE	D	TIVY	C	TONATA	D	TOWHEE	D
THACKER	D	TIETON	B	TOA	B	TONCANA	B	TOWNER	B
THACKERY	B	TIFFANY	B/D	TOADLAKE	B	TONEY	D	TOWNLEY	C
THADEN	C	TIFTON	B	TOAND	B	TONGUE RIVER	C	TOWNSEND	C
THAGE	C	TIGER CREEK	B	TOANO	B	TONIO	B	TOWOSAHGY	B
THATCHER	B	TIGERON	B	TOBICO	A/D	TONKA	C/D	TOXAWAY	B/D
THATUNA	C	TIGIT	C	TOBIN	B	TONKAVAR	A	TOY	D
THAYNE	B	TIGIWON	B	TOBISH	C	TONKAWA	A	TOYAH	B
THEBES	B	TIGLEY	B	TOBLER	B	TONKEY	B/D	TOYUSKA	B
THEBO	D	TIGON	D	TOBOSA	D	TONKIN	B	TOZE	B
THEDALUNO	C	TIGUA	D	TOBY	B	TONKIN, MODERATELY WET	C	TRABUCO	C
THEEDLE	C	TIJERAS	B	TOCAL	C			TRACHUTE	B
THENAS	C	TIKI	D	TOCALOMA	C	TONKS	C	TRACK	D
THEODOR	D	TILFER	B/D	TOCAN	B	TONOPAH	A	TRACK, DRAINED	C
THEON	D	TILFORD	B	TOCCOA	B	TONOR	C	TRACOSA	D
THERESA	B	TILLEDA	B	TOCK	C	TONOWEK	B	TRACY	B
THERIOT	D	TILLICUM	B	TOCOI	B/D	TONPA	B	TRADEDOLLAR	B
THERMO	D	TILLMAN	C	TODDLER	B	TONSINA	B	TRAER	B/D
THERMOPOLIS	D	TILLMONT	B	TODDSTAV	D	TONTI	C	TRAG	B
THESS	B	TILLOU	C	TODDVILLE	B	TONUCO	D	TRAG, COOL	C
THETFORD	A	TILMA	C	TODOS	C	TOOLES	D	TRAHAM	C
THETIS	B	TILSIT	C	TOEHEAD	B	TOOLESBORO	B	TRAIL	A
THIEFRIVER	B/D	TILTON	B	TOEJA	B	TOOMES	D	TRAILAMP	D
THIEL	B	TIMBALIER	D	TOEM	C	TOONF	C	TRAILCREEK	C
THIESSEN	C	TIMBERG	C	TOGCHA	B	TOONE, LOAMY SUBSTRATUM, STONY	B	TRAILHEAD	B
THIKE	D	TIMBERHEAD	B	TOGNONI	D			TRAINER	B
THIOKOL	B	TIMBERLY	B	TOGO	B	TOP	C	TRAITORS	D
THIRST	D	TIMBERVILLE	B	TOGUS	D	TOPEKI	D	TRAMPAS	C
THISTLEBURN	B	TIMBLIN	D	TOHONA	C	TOPEMAN	D	TRAMWAY	B
THISTLEDEW	B	TIMBUCTOO	C	TOIMI	C	TOPIA	D	TRANQUILAR	C
THOENY	D	TIMENTWA	B	TOINE	B	TOPLIFF	B	TRANSYLVANIA	B
THOMAS	B/D	TIMHILL	D	TOISNOT	B/D	TOPONCE	C	TRAPPER	B
THOMHILL	B	TIMHUS	B	TOISNOT, PONDED	D	TOPPENISH	D	TRAPPIST	C
THOMS	D	TIMKEN	D	TOIYABE	C	TOPPENISH, DRAINED	C	TRAPPS	B
THORNBURGH	B	TIMMERMAN	B	TOKAY	B	TOPPER	B	TRASK	C
THORNDALE	D	TIMMONS	B	TOKEEN	C	TOPSEY	C	TRAVELERS	D
THORNDIKE	C/D	TIMPAHUTE	D	TOKLAT	D	TOQUERVILLE	D	TRAVER	B
THORNOCK	D	TIMPANOGOS	B	TOKOPER	D	TOQUI	D	TRAVERTINE	C
THORNTON	D	TIMPANOGOS, MODERATELY WELL DRAINED	C	TOKUL	C	TOQUOP	A	TRAVESSILLA	D
THOROUGHFARE	B			TOLANY	B	TOR	D	TRAVIS	C
THORP	C/D			TOLEY	B	TORBOY	A	TRAYSON	D
THOUT	C	TIMPER	D	TOLEDO	D	TORCHLIGHT	C	TRAWICK	B
THOW	B	TIMULA	B	TOLEX	D	TORDIA	D	TRAY	C
THOWSON	B	TINA	C	TOLICHA	D	TOREX	B	TREADWAY	D
THRASH	B	TINAJA	B	TOLKE	B	TORHUNTA	C	TREATY	B/D
THREADGILL	B	TINAMOU	C	TOLL	A	TORNEY	D	TREBLE	B
THREECHOP	B	TINDAHAY	B	TOLLGATE	B	TORNILLO	B	TREBLOC	D
THREEDOT	D	TINDAHAY, GRAVELLY	A	TOLLHOUSE	D	TORNING	B	TREBOR	C
THREEK	C	TINE	A	TOLMAN	D	TORODA	B	TREEKOR	D
THREEMILE	B	TINEMAN	B	TOLNA	B	TORONTO	C	TREEKOR, NONSTONY	C
THREETOP	C	TINEMAN, WET	C	TOLO	B	TORPEDO LAKE	D	TREEN	D
THROCK	C	TINGEY	B	TOLONIER	B	TORREON	C	TREGO	C
THULEPAH	C	TINKER	C	TOLSONA	D	TORREON, COBBLY	D	TREHARNE	C
THUMBERLAND	B	TINN	D	TOLSONA, TILL SUBSTRATUM	B	TORRES	A	TRELK	B
THUNDERBIRD	D	TINNIN	A			TORRO	B	TRELONA	D
THURBER	D	TINSLEY	A	TOLSTOI	D	TORRY	B/D	TREMANT	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

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

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

VANEPPS	C	VERDE	C	VILLY, DRAINED	B	WABASSO	B/D	WALES, OVERBLOWN	C
VANET	D	VERDEL	D	VILOT	C	WABASSO,	D	WALFORD	B/D
VANG	B	VERDICO	D	VIMVILLE	D	DEPRESSIONAL		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
VANOCKER	B	VERGENNES	C	VINDICATOR	D	WACA	B	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	WACOUSTA	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		VERLOT	D	VINITA	C	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	D	VINSON	B	WADESPRINGS	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	VERNIA	A	VINTON	B	WAGES	B	WALONG	B
SUBSTRATUM		VERNON	D	VIOLA	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	WAHATOYA	C	WALTERSHOW	B
VARRO	B	VERTEL	D	VIRGIN PEAK	D	WAHEE	D	WALTI	D
VARYSBURG	B	VERTREES	B	VIRGIN RIVER	C	WAHGUYHE	D	WALUM	B
VASA	B	VES	B	VIRKULA	C	WAHIAWA	B	WALVAN	B
VASHTI	C	VESEY	B	VIRTUE	C	WAHIKULI	C	WALVILLE	B
VASQUEZ	C	VESPER	D	VISTA	B	WAHKEENA	B	WAMBA	D
VASSALBORO	D	VESSER	C	VITALE	C	WAHLUKE	B	WAMBA, DRAINED	C
VASSAR	B	VESSILLA	D	VITZTHUM	D	WAHOO	D	WAMDUSKA	A
VASSETT	B	VESTA	B	VIUDA	D	WAHPETON	C	WAMEGO	C
VASTINE	C	VESTABURG	A/C	VIUM	D	WAHREKDAM	C	WAMIC	B
VASTINE	D	VESTON	D	VIVES	B	WAHSTAL	D	WAMPOO	D
SALINE-ALKALI		VETA	B	VIVI	B	WAHTIGUP	B	WAMPSVILLE	B
VAUCLUSE	C	VETAL	B	VIXEN	B	WAHTUM	D	WANAGAN	B
VAUGHAN	D	VETEADO	C	VIZCAINO	D	WAHWEAP	D	WANBLEE	D
VAUGHNSVILLE	C	VEYO	D	VIZCAPOINT	D	WAIAHA	D	WANDA	B
VAY	B	VIA	B	VLASATY	C	WAIAKOA	C	WANDO	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	B	VIBORG	B	VODEPMAIER	B	WAIKALOA	B	WANOGA	B
VEBAR	B	VICEE	B	VOIGHT	B	WAIKANE	B	WANOMIE	C
VECONT	D	VICK	C	VOLACORA	B	WAIKAPU	B	WANSER	D
VEEDUM	D	VICKERY	C	VOLASH	B	WAIKOMO	D	WANSER, DRAINED	B
VEET	B	VICKING	B	VOLBORG	D	WAILUKU	B	WAPAL	A
VEGA	C	VICKING, DRY	D	VOLCO	D	WAIMEA	B	WAPAL, BEDROCK	B
VEGA ALTA	B	VICKSBURG	B	VOLENTE	C	WAINEE	B	SUBSTRATUM	
VEGA BAJA	C	VICKTON	B	VOLINIA	B	WAINOLA	B	WAPAL, BEDROCK	B
VEKOL	D	VICTINE	D	VOLKMAR	B	WAIPAHU	C	SUBSTRATUM	
VEKOL, COOL	C	VICTOR	B	VOLNEY	B	WAISKA	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	B	VOLTAGE	B	WAKEEN	B	WAPINITIA	B
VELMA	B	VICU	C	VOLTAIRE	D	WAKEFIELD	B	WAPPING	B
VELOW	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		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	B	VONALEE	B	SUBSTRATUM		WARBA	B
VENAPASS	D	VIGAR	C	VONASON	B	WAKULLA	A	WARDBORO	A
VENATOR	C	VIGIA	D	VOORHIES	C	WALCAN	C	WARDELL	C
VENETA	D	VIGNOLO	C	VORE	B	WALCOTT	B	WARDEN	B
VENEZIA	D	VIGO	D	VOSBURG	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
VENTURE	D	VILAS	A	VYLACH	D	WALDORF	C/D	WAREHAM	C
VENUM	D	VILLA	B	WAAS	B	WALDPORT	A	WARM SPRINGS	D
VENUS	B	VILLA GROVE	B	WABANICA	C	WALDRON	D	WARM SPRINGS,	C
VERBOORT	D	VILLEGREEN	C	WABASH	D	WALDROUP	D	DRAINED, CLAY	
VERCLIFF	C	VILLY	D	WABASHA	D	WALES	B	SUBSTRATUM	

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

WARM SPRINGS, DRAINED, ALKALI	C	WAUPECAN	B	WELD	C	WETTERHORN	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 SUBSOIL	A/D	WAUTOMA	B/D	WELLMAN	B	WEWOKA	C	WICKENBURG	D
WARNEKE	D	WAVELAND	B/D	WELLS	B	WEYERS	C/D	WICKERSHAM	B
WARNERS	C/D	WAVELAND, DEPRESSIONAL	D	WELLSBORO	C	WEYMOUTH	B	WICKETT	C
WARNOCK	B	WAVERLY	B/D	WELLSCREEK	B	WHAKANA	B	WICKHAM	B
WARRENTON	D	WAWASEE	B	WELLSED	C	WHALAN	B	WICKIUP	C
WARSAW	B	WAWINA	A	WELLSTON	B	WHALEY	D	WICKSBURG	B
WARSING	B	WAX	C	WELLSVILLE	B	WHARTON	C	WICUP	C
WARWICK	A	WAXPOOL	D	WELLTON	B	WHATCOM	C	WIDEMAN	A
WASA	D	WAYAH	B	WELOY	C	WHATELY	D	WIDEN	C
WASATCH	A	WAYBE	D	WELRING	D	WHEATLEY	A/D	WIDTSOE	B
WASCO	B	WAYCUP	B	WELSUM	D	WHEATRIDGE	B	WIEHL	C
WASDA	B/D	WAYDEN	D	WELTER	D	WHEATVILLE	B	WIELAND	C
WASEPI	B	WAYLAND	C/D	WEMPLE	B	WHEELER	B	WIERGATE	D
WASHBURN	D	WAYMOR	B	WENAS	D	WHEELERVILLE	B	WIFFO	B
WASHINGTON	B	WAYNECO	D	WENAS, DRAINED	C	WHEELING	B	WIGGLER	D
WASHINGTON, WET SUBSTRATUM	C	WAYNESBORO	B	WENATCHEE	C	WHEELON	D	WIGGLETON	B
WASHOE	B	WAYNETOWN	C	WENDANE	C	WHETROCK	C	WIGTON	A
WASHOUGAL	B	WEA	B	WENDANE, DRAINED	B	WHETSTONE	C	WILAHA	B
WASHTENAW	C/D	WEAVER	C	WENDOVER	D	WHICHMAN	B	WILBANKS	D
WASILLA	D	WEAVERVILLE	B	WENDTE	D	WHIDBEY	C	WILBRAHAM	C
WASIOJA	B	WEBB	C	WENONA	C	WHILPHANG	D	WILBUR	B
WASKISH	D	WEBBRIDGE	B	WENTWORTH	B	WHIPPANY	C	WILBURTON	B
WASKOM	C	WEBBTOWN	C	WEOGUFKA	C	WHIPPLE	D	WILCO	C
WASPO	D	WEBER	B	WEPO	C	WHIPSTOCK	C	WILCOX	D
WASSAIC	B	WEBILE	C	WERELD	B	WHIRLO	B	WILCOXSON	C
WASSIT	D	WEBSTER	B/D	WERLOG	C	WHISKEYDICK	C	WILDALE	C
WATAB	C	WEDEKIND	D	WERNER	D	WHISPERING	C	WILDCAT	D
WATAMA	C	WEDERTZ	B	WESFIL	D	WHISTLE	B	WILDERNESS	C
WATAUGA	B	WEDGE	A	WESIX	D	WHIT	B	WILDGEN	B
WATCHABOB	C	WEDLAR	C	WESKA	D	WHITAKER	C	WILDHORSE	A
WATCHAUG	B	WEDOWEE	B	WESLEY	B	WHITE HOUSE	C	WILDORS	C
WATCHUNG	D	WEED	B	WESO	B	WHITE STORE	D	WILDWOOD	D
WATERBURY	D	WEEDING	D	WESPAC	D	WHITE SWAN	D	WILE	C
WATERCANYON	B	WEEDMARK	B	WESPAC, SANDY SUBSTRATUM	C	WHITECAP	D	WILEY	B
WATEREE	B	WEEKIWACHEE	D			WHITECLOUD	B	WILHITE	C/D
WATERMAN	D	WEEKS	C	WESSEL	C	WHITECOW	B	WILHOIT	B
WATERTOWN	A	WEEKSVILLE	B/D	WESTBROOK	D	WHITECROSS	D	WILKES	C
WATERVILLE	B	WEENA	D	WESTBURY	C	WHITEFISH	B	WILKESON	B
WATKINS	B	WEEPAH	C	WESTBUTTE	C	WHITEFORD	B	WILKINS	D
WATKINS RIDGE	B	WEESATCHE	B	WESTCAMP	C	WHITEHALL	B	WILL	B/D
WATO	B	WEGA	B	WESTCREEK	B	WHITEHILLS	C	WILLABY	C
WATONGA	D	WEHADKEE	D	WESTE	C	WHITEHORN	D	WILLACY	B
WATOOPAH	B	WEIGANG	C	WESTERVILLE	B	WHITEHORSE	B	WILLAKENZIE	C
WATROUS	B	WEIGLE	D	WESTFORK	D	WHITEKNOB	B	WILLAMAR	B
WATSEKA	B	WEIKERT	C/D	WESTHAVEN	B	WHITELAKE	B	WILLAMETTE	B
WATSON	C	WEIMER	D	WESTHAVEN, SALINE-ALKALI	C	WHITEMAN	D	WILLAMETTE, WET	C
WATSONIA	D	WEINBACH	C			WHITEPEAK	D	WILLANCH	D
WATSONVILLE	D	WEINGART	D	WESTINDIAN	C	WHITERIVER	C	WILLAPA	C
WATT	D	WEINGARTEN	C	WESTLAKE	D	WHITEROCK	D	WILLARD	B
WATTON	C	WEIR	D	WESTLAND	B/D	WHITESBORO	C	WILLETTE	A/D
WATUSI	C	WEIRMAN	C	WESTMORE	C	WHITESBURG	C	WILLHILL	C
WAUBAY	B	WEIRMAN, WET	D	WESTMORELAND	B	WHITESON	D	WILLHO	D
WAUBEEK	B	WEIRMAN, NONFLOODED	A	WESTON	D	WHITESTONE	B	WILLIAMS	B
WAUBERG	D	WEISBURG	C	WESTOVER	B	WHITETHORN	B	WILLIAMSBURG	B
WAUBONSIE	B	WEISER	B	WESTPHALIA	B	WHITEWATER	D	WILLIAMSON	C
WAUCEDAH	D	WEISHAUPT	D	WESTPLAIN	D	WHITEWOLF	A	WILLIAMSPORT	C
WAUCHULA	B/D	WEISSENFELS	C	WESTPORT	A	WHITEWOOD	C/D	WILLIAMSTOWN	C
WAUCHULA, DEPRESSIONAL	D	WEITAS	B	WESTPORT, THIN SURFACE	B	WHITEWOOD, NONFLOODED	B/D	WILLIAMSVILLE	C
WAUCOBA	D	WEITCHPEC	C	WESTSHORE	D	WHITINGER	C	WILLIMAN	B/D
WAUCOMA	B	WEKODA	D	WESTVACO	C	WHITLEY	B	WILLIS	C
WAUCONDA	B	WELAKA	A	WESTVIEW	B	WHITLOCK	B	WILLISTON	C
WAUKEE	B	WELBY	B	WESTVILLE	B	WHITMAN	D	WILLOW CREEK	B
WAUKEGAN	B	WELCH	D	WESTWEGO	D	WHITNEY	C	WILLOWDALE	B
WAUKENA	D	WELCH, GRAVELLY SUBSTRATUM, DRAINED	B	WESWIND	C	WHITORE	B	WILLOWEMOC	C
WAUKON	B			WESWOOD	B	WHITSOL	B	WILLOWMAN	B
WAULD	C	WELCH, RARELY FLOODED, DRAINED	B	WETA	D	WHITSON	D	WILLOWS	D
WAUMAC	B	WELCH, DRAINED	C	WETHERSFIELD	C	WHITTIER	B	WILLWOOD	A
WAUMBEK	B	WELCHLAND	B	WETHEY	C	WHITWELL	C	WILMA	B
WAUNA	C	WELCOME	B	WETHEY, DRAINED	A	WHOBREY	C	WILMER	C
WAUPACA	B/D	WELDON	B	WETMORE	D	WHOLAN	B	WILMINGTON	D
				WETSAW	C	WHORLED	C	WILMONT	B
						WHY	B	WILMONTON	B
								WILPAR	C
								WILPOINT	D
								WILSHIRE	A

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

WILSON	D	WISHARD	C	WOODS CROSS	D	WYNOOSE	D	YEGEN	B
WILSONGULCH	B	WISHBONE	B	WOODSEYE	D	WYOCENA	B	YEGUAS	C
WILSONVILLE	D	WISHEYLU	C	WOODSFIELD	C	WYOMING	A	YELJACK	B
WILSOR	B	WISHKAH	D	WOODSIDE	B	WYRENE	B	YELLOWBAY	B
WILST	C	WISHKAH, 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	XENO	B	YENCE	C
WIND RIVER	B	WITEFELS	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	YEOMAN	B
WINDER,	D	WITHERBEE	A/D	WOOLPER	C	XINE	C	YEOPIM	B
DEPRESSIONAL		WITHERELL	D	WOOLSEY	B	XIPE	D	YERINGTON	A
WINDHAM	B	WITHERS	C	WOOLSTALF	B	XIPE, MODERATELY	C	YERMO	B
WINDICREEK	A	WITT	B	WOOLSTED	B	WET		YESUM	B
WINDMILL	B	WITTEN	D	WOONSOCKET	B	XMAN	D	YETTEM	B
WINDSOR	A	WITTENBERG	B	WOOSLEY	C	YACOLT	B	YETULL	A
WINDTHORST	C	WITZEL	D	WOOSTER	C	YAGO	C	YIGO	B
WINDWHISTLE	C	WIX	C	WORCESTER	C	YAHANA	C	YIPOR	B
WINDWHISTLE, WARM	B	WIXOM	B	WORDEN	C	YAHARA	C	YLIG	C
WINDY	B	WOCKLEY	C	WORF	D	YAHNE	C	YOBE	C
WINDYPOINT	B	WODA	D	WORFKA	D	YAHOLA	B	YOCHUM	C
WINEG	B	WODEN	B	WORFMAN	D	YAHOO	D	YOCKEY	C
WINEMA	C	WODSKOW	C	WORFSTONE	C	YAINAX	B	YODER	B
WINETTI	B	WODSKOW, DRAINED	B	WORK	C	YAKI	D	YODY	C
WINEVADA	C	WOHLY	B	WORK, GRAVELLY	B	YAKIMA	B	YOHURT	D
WINFALL	B	WOLCO	C	WORLAND	C	YAKUS	D	YOKAYO	D
WINFIELD	B	WOLCOTT	B/D	WORLEY	D	YAKUTAT	A	YOKOHL	D
WING	D	WOLDALE	D	WORMSER	C	YALELAKE	B	YOKUT	B
WINGATE	B	WOLDALE, DRAINED	C	WOROCK	B	YALESVILLE	C	YOLLABOLLY	D
WINGER	B/D	WOLF	B	WORSHAM	D	YALLANI	B	YOLO	B
WINGINAW	D	WOLF POINT	C	WORTH	C	YALMER	B	YOLOGO	D
WINGVILLE	D	WOLFCREEK	B	WORTHEN	B	YAMAC	B	YOMBA	B
WINIFRED	C	WOLFESON	C	WORTHING	D	YAMHILL	C	YOMONT	B
WINK	B	WOLFESON, WET	D	WORTMAN	D	YAMO	B	YONGES	D
WINKEL	D	WOLFEY	C	WORTMAN, SANDY	A	YAMSAY	D	YONNA	D
WINKLEMAN	C	WOLFPEN	A	WOVOKA	D	YANA	B	YORBA	D
WINKLEMAN, WET	D	WOLFTEVER	C	WRANGELL	D	YANCY	D	YORK	C
WINKLER	B	WOLLARD	C	WRANGO	A	YANKEE	D	YORKTOWN	D
WINLER	D	WOLLENT	D	WRAYHA	D	YANKTON	B	YORKTREE	C
WINLO	D	WOLOT	B	WREDAH	B	YANUSH	B	YORKVILLE	D
WINN	C	WOLVERINE	A	WRENCOE	D	YAP	B	YOST	D
WINNEBAGO	B	WOMACK	C	WRENMAN	C	YAPOAH	B	YOST, DRAINED	C
WINNECONNE	C	WOO	B	WRENTHAM	C	YAQUI	B	YOUD	D
WINNECOOK	C	WOO, OVERWASH	C	WRIGHT	C	YAQUINA	D	YOUGA	B
WINNEMUCCA	B	WOO, WET	C	WRIGHTMAN	C	YAQUINA, DRAINED	C	YOUGA, SANDY	D
WINNESHIEK	B	WOOD RIVER	D	WRIGHTSBORO	C	YARCO	D	SUBSTRATUM	
WINNETT	D	WOODBECK	B	WRIGHTSVILLE	D	YARDLEY	C	YOUJAY	D
WINNSBORO	D	WOODBINE	B	WRIGHTWOOD	B	YARTS	B	YOUMAN	C
WINOM	D	WOODBRIDGE	C	WUKOKI	B	YATAHONEY	C	YOUNGSTON	B
WINONA	D	WOODBURN	C	WUKSI	A	YATAHONEY, STONY	D	YOUNGSTON, WET	C
WINDOSKI	B	WOODBURY	D	WULFERT	D	YATES	D	YOURAME	B
WINOPEE	B	WOODCOCK	B	WUNJEY	B	YAUCO	C	YOUTLKUE	D
WINRIDGE	D	WOODFORD	D	WUPATKI	D	YAUHANNAH	B	YOVIMPA	D
WINSHIP	C	WOODGULCH	A	WURNO	C	YAUPON	D	YPSI	C
WINSPECT	B	WOODHALL	C	WURSTEN	B	YAWDIM	D	YRIBARREN	D
WINSTON	B	WOODHURST	C	WURTSBORO	C	YAWHEE	B	YSIDORA	C
WINT	D	WOODIN	C	WYALUSING	D	YAWKEY	B	YTURBIDE	A
WINTERFIELD	A/D	WOODINGTON	B/D	WYANDOTTE	D	YAXON	B	YTURRIA	A
WINTERHAVEN	B	WOODINVILLE	D	WYANT	C	YEAGER	A	YUBA	D
WINTERIDGE	B	WOODINVILLE,	C	WYARD	B	YEARY	C	YUKO	D
WINTERS	C	DRAINED		WYARNO	B	YEATES HOLLOW	B	YUKON	D
WINTERSBURG	C	WOODLAWN	B	WYATT	C	YEATES HOLLOW,	C	YULEE	D
WINTERSET	C	WOODLEAF	C	WYCOLO	C	LOAMY SUBSTRATUM,		YUNES	D
WINTHROP	A	WOODLY	B	WYE	B	STONY		YUNQUE	C
WINTLEY	B	WOODLYN	D	WYEAST	D	YEATES HOLLOW,	C	YURM	D
WINTON	C	WOODMANSIE	B	WYETH	B	LOAMY SUBSTRATUM		YUTRUE	D
WINTONER	B	WOODMERE	B	WYEVILLE	C	YEATES HOLLOW,	C	YUVAS	D
WINU	C	WOODMONT	C	WYICK	D	STONY		ZAAR	D
WINZ	D	WOODPASS	B	WYKEHAM	B	YEATES HOLLOW,	C	ZABA	B
WIOTA	B	WOODROCK	C	WYKOFF	B	NONSTONY		ZACA	D
WIPPLE	C	WOODROW	B	WYMAN	B	YEATES HOLLOW, DRY	C	ZACHARIAS	B
WIRT	B	WOODROW,	C	WYMORE	D	YEATES HOLLOW,	C	ZACHARY	C
WISCOW	D	SALINE-ALKALI		WYNDMERE	B	COBBLY		ZACK	D
WISE	C	WOODROW,	C	WYNN	B	YEATON	C	ZADOG	A/D
WISEMAN	A	OCCASIONALLY		WYNNVILLE	C	YECROSS	A	ZADVAR	D
WISFLAT	D	FLOODED		WYNONA	C	YEDLICK	B	ZAFRA	B

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Table 2-1.—Hydrologic soil groups for U.S. soils (continued)

ZAGG	C	ZOHNER	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	ZUBER	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	ZYPLAR	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				
ZENOD	B				
ZENOR	B				
ZENORIA	C				
ZEOMONT	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				
ZILABOY	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				

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Table 2-2.—Runoff depth for selected CN's and rainfall amounts[1]

Rainfall	Runoff (Q) for curve number of—											
	40	45	50	55	60	65	70	75	80	85	90	95
	inches											
1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.17	0.32	0.56
1.2	.00	.00	.00	.00	.00	.00	.03	.07	.15	.27	.46	.74
1.4	.00	.00	.00	.00	.00	.02	.06	.13	.24	.39	.61	.92
1.6	.00	.00	.00	.00	.01	.05	.11	.20	.34	.52	.76	1.11
1.8	.00	.00	.00	.00	.03	.09	.17	.29	.44	.65	.93	1.29
2.0	.00	.00	.00	.02	.06	.14	.24	.38	.56	.80	1.09	1.48
2.5	.00	.00	.02	.08	.17	.30	.46	.65	.89	1.18	1.53	1.96
3.0	.00	.02	.09	.19	.33	.51	.71	.96	1.25	1.59	1.98	2.45
3.5	.02	.08	.20	.35	.53	.75	1.01	1.30	1.64	2.02	2.45	2.94
4.0	.06	.18	.33	.53	.76	1.03	1.33	1.67	2.04	2.46	2.92	3.43
4.5	.14	.30	.50	.74	1.02	1.33	1.67	2.05	2.46	2.91	3.40	3.92
5.0	.24	.44	.69	.98	1.30	1.65	2.04	2.45	2.89	3.37	3.88	4.42
6.0	.50	.80	1.14	1.52	1.92	2.35	2.81	3.28	3.78	4.30	4.85	5.41
7.0	.84	1.24	1.68	2.12	2.60	3.10	3.62	4.15	4.69	5.25	5.82	6.41
8.0	1.25	1.74	2.25	2.78	3.33	3.89	4.46	5.04	5.63	6.21	6.81	7.40
9.0	1.71	2.29	2.88	3.49	4.10	4.72	5.33	5.95	6.57	7.18	7.79	8.40
10.0	2.23	2.89	3.56	4.23	4.90	5.56	6.22	6.88	7.52	8.16	8.78	9.40
11.0	2.78	3.52	4.26	5.00	5.72	6.43	7.13	7.81	8.48	9.13	9.77	10.39
12.0	3.38	4.19	5.00	5.79	6.56	7.32	8.05	8.76	9.45	10.11	10.76	11.39
13.0	4.00	4.89	5.76	6.61	7.42	8.21	8.98	9.71	10.42	11.10	11.76	12.39
14.0	4.65	5.62	6.55	7.44	8.30	9.12	9.91	10.67	11.39	12.08	12.75	13.39
15.0	5.33	6.36	7.35	8.29	9.19	10.04	10.85	11.63	12.37	13.07	13.74	14.39

[1] Interpolate the values shown to obtain runoff depths for CN's or rainfall amounts not shown.

Table 2-3a.—Runoff curve numbers for cultivated agricultural lands[1]

Cover description			Curve numbers for hydrologic soil group—			
Cover type	Treatment[2]	Hydrologic condition[3]	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	Poor	72	81	88	91
		Good	67	78	85	89
	Straight row + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	Contoured + 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
	Contoured & terraced + CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	Straight row	Poor	65	76	84	88
		Good	63	75	83	87
	Straight row + CR	Poor	64	75	83	86
		Good	60	72	80	84
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	Contoured + CR	Poor	62	73	81	84
		Good	60	72	80	83
	Contoured & terraced	Poor	61	72	79	82
		Good	59	70	78	81
	Contoured & terraced + CR	Poor	60	71	78	81
		Good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	Straight row	Poor	66	77	85	89
		Good	58	72	81	85
	Contoured	Poor	64	75	83	85
		Good	55	69	78	83
	Contoured & terraced	Poor	63	73	80	83
		Good	51	67	76	80

[1] Average runoff condition.

[2] *Crop residue cover (CR)* applies only if residue is on at least 5% of the surface throughout the year.

[3] 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 ≥ 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 2-3b.—Runoff curve numbers for other agricultural lands[1]

Cover description		Curve numbers for hydrologic soil group—			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing.[2]	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.[3]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30[4]	48	65	73
Woods-grass combination (orchard or tree farm).[5]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods[6]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30[4]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

[1] Average runoff condition.
[2] *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.
[3] *Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.
[4] Actual curve number is less than 30; use CN = 30 for runoff computations.
[5] 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.
[6] *Poor:* Forest, litter, small trees, and brush have been 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 2-3c.—Runoff curve numbers for arid and semiarid rangelands[1]

Cover description		Curve numbers for hydrologic soil group—			
Cover type	Hydrologic condition[2]	A[3]	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

[1] Average runoff condition. For rangelands in humid regions, use table 2-3b.

[2] *Poor:* <30% ground cover (litter, grass, and brush overstory).
Fair: 30% to 70% ground cover.
Good: >70% ground cover.

[3] Curve numbers for group A have been developed only for desert shrub.

Table 2-3d.—Runoff curve numbers for urban areas[1]

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
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)[4]		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
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2a).					

[1] Average runoff condition.

[2] 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.

[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4] Composite CN's for natural desert landscaping should be computed based on the impervious area (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-4.—I_a values for runoff curve numbers

Curve number	I_a (in)	Curve number	I_a (in)
40	3.000	68	0.941
41	2.878	69	0.899
42	2.762	70	0.857
43	2.651	71	0.817
44	2.545	72	0.778
45	2.444	73	0.740
46	2.348	74	0.703
47	2.255	75	0.667
48	2.167	76	0.632
49	2.082	77	0.597
50	2.000	78	0.564
51	1.922	79	0.532
52	1.846	80	0.500
53	1.774	81	0.469
54	1.704	82	0.439
55	1.636	83	0.410
56	1.571	84	0.381
57	1.509	85	0.353
58	1.448	86	0.326
59	1.390	87	0.299
60	1.333	88	0.273
61	1.279	89	0.247
62	1.226	90	0.222
63	1.175	91	0.198
64	1.125	92	0.174
65	1.077	93	0.151
66	1.030	94	0.128
67	0.985	95	0.105

Worksheet 1: Runoff curve number (CN)

Client _____ By _____ Date _____

County _____ State _____ Checked _____ Date _____

Practice _____

Soil name and hydrologic group (table 2-1)	Cover description (cover type, treatment, and hydrologic condition)	CN (table 2-3)	Area (acres or %)	Product of CN × area
		Totals =		

CN (weighted) = _____ = _____ ; Use CN = [ ]

Worksheet 2: Time of concentration and peak discharge

Client _____ By _____ Date _____

County _____ State _____ Checked _____ Date _____

Practice _____

Estimating time of concentration

1. Data:

   Rainfall distribution type ..... = _____ (I, IA, II, III)

   Drainage area ..... A = _____ ac

   Runoff curve number ..... CN = _____ (Worksheet 1)

   Watershed slope ..... Y = _____ %

   Flow length ..... ℓ = _____ ft

2. T_c using ℓ, Y, CN and figure 2-27 ..... = _____ hrs

   or using equation 2-5

$$T_C = \frac{\ell^{0.8}\left[\left(\frac{1000}{CN}\right) - 9\right]^{0.7}}{1140\ Y^{0.5}} = \frac{(\quad)^{0.8}(\quad)^{0.7}}{1140\ (\quad)^{0.5}} = \_\_\_\_\_ \text{ hrs}$$

Estimating peak discharge

			Storm #1	Storm #2	Storm #3
1.	Frequency	yr			
2.	Rainfall, P (24-hour)	in			
3.	Initial abstraction, I_a ..... (Use CN with table 2-4)	in			
4.	Compute I_a/P ratios				
5.	Unit peak discharge q_u ..... (Use T_c and I_a/P with exhibit 2-11)	cfs/ac/in			
6.	Runoff, Q ..... (Use P and CN with figure 2-26 or table 2-2)	in			
7.	Peak discharge, q_p ..... (Where $q_p = q_u$ AQ)	cfs			

* U.S. Government Printing Office : 1991 - 282-957/40303

HYDROLOGIC SOIL GROUPS FOR IOWA SOILS

Soil properties influence the process of generation of runoff from rainfall and must be considered in methods of runoff estimation. When runoff from individual storms is the major concern, the properties can be represented by a hydrologic parameter which reflects the minimum rate of infiltration obtained for a bare soil after prolonged wetting. The influences of both the surface and the horizons of a soil are therefore included.

Four hydrologic groups are used. The soils are classified on the basis of water intake at the end of the long-duration storms occurring after prior wetting and after an opportunity for swelling, and without the protective effects of vegetation. In the definitions to follow, the infiltration rate is the rate at which water enters the soil at the surface and which is controlled by surface conditions, and the transmission rate is the rate at which the water moves in the soil and which is controlled by the horizons. The hydrologic soil groups, as defined by NRCS soil scientists, are:

A. (Low runoff potential) Soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well to excessively drained sands or gravels. These soils have a high rate of water transmission.

B. Soils having moderate infiltration rates when thoroughly wetted and consisting 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.

C. Soils having slow infiltration rates when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.

D. (High runoff potential) Soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission.

The following table gives the hydrologic soil group for each soil series. Generally speaking, those series having two possible classifications are soils with relatively high water tables so that artificial drainage measurably improves their ability to absorb rainfall and thus reduce runoff.

SOIL SERIES	HYDROLOGIC SOIL GROUP
Ackmore	B
Adair	C
Adco	D
Adrian	A/D
Afton	C/D
Ainsworth	B
Albaton	D
Allamakee	B
Allendorf	B
Amana	B
Ambraw	B/D
Ames	C/D
Angus	B
Ankeny	A
Annieville	B
Ansgar	B/D
Anthon	B
Appanoose	D
Arbor	B
Aredale	B
Arenzville	B
Arispe	C
Armstrong	C
Arthur	B
Ashdale	B
Ashgrove	D
Atkinson	B
Atterberry	B
Aureola	B

Backbone	B
Bassett	B
Bauer	C
Bearpen	B/D
Beckwith	D
Belinda	D
Belmann	C
Benclare	C
Bertram	B
Bertrand	B
Billett	A
Biscay	B/D
Bixby	B
Blake	B
Blencoe	D
Blend	D
Blockton variant	C
Blue Earth	A/D
Bode	B
Bolan	B
Bolan variant	B

SOIL SERIES	HYDROLOGIC SOIL GROUP
Boone	B
Boots	A/D
Brady	B
Bremer	C
Brownton	C/D
Bucklick	C
Bucknell	C
Buckney	B
Burcham	B
Burchard	C
Burkhardt	A

Calamine	D
Calco	B/D
Calcousta	B/D
Caleb	B
Camden	B
Caneek	B
Caneek variant	B
Canisteo	B/D
Canoe	B
Canoe variant	B
Cantril	B
Carlow	D
Carr	A
Castana	B
Cerlin	D
Chariton	C
Chaseburg	B
Chelsea	A
Chequest	C
Churchtown	B
Clanton	C
Clarinda	D
Clarion	B
Clearfield	C
Clinton	B
Clyde	B/D
Coggon	B
Cokato	B
Coland	B/D
Collinwood	C
Collinwood variant	B
Colo	B/D
Cooper	B
Copaston	D
Coppock	B
Cordova	C/D
Corley	C/D
Cornell	C
Corwith	B

SOIL SERIES	HYDROLOGIC SOIL GROUP
Cosmos	C/D
Cott	B
Coyne	B
Creal	C
Cresco	C
Cresken	B
Crippin	B
Crofton	B
Curran	C
Cylinder	B
Cylinder variant	B
Danbury	B
Darfur	B/D
Darwin	D
Darwin variant	D
Davis	B
Delft	B/D
Dells	C
Deloit	B
Dempster	B
Denrock variant	D
Dickinson	A
Dickinson lacustrine substratum	A
Dickman	A
Dinsdale	B
Dinsmore	B
Dockery	C
Dodgeville	B
Dolbee	B
Donatus	B
Donnan	D
Donnan variant	C
Dorchester	B
Dorerton	B
Douds	B
Dow	B
Downs	B
Downs variant	B
Du Page	B
Dubuque	B
Dunbarton	D
Dunbarton variant	B
Dundas	B/D
Dunkerton	B
Edina	D
Egan	B
Eitzen	B
Ella	B
Elon	B
Elrick	B
Elrin	B
Elvers	B/D
Elvira	B/D
Ely	B
Emeline	D
Estherville	B
Everly	B
Exette	B
Exira	B
Fairhaven	B
Farrar	B
Faxon	B/D
Fayette	B
Fens	A/D
Festina	B
Fieldon	B/D
Finchford	A
Flaggy alluvial land	B/D
Flagler	A
Flagler variant	A
Floris	B
Floyd	B
Forney	D
Fort Dodge	B
Fostoria	B
Franklin	B
Frankville	B
Fruitfield	A
Gale	B
Galland	D
Galva	B
Gara	C
Garmore	B
Garwin	B/D
Gasconade	D
Gilford	B/D
Gillett Grove	B/D
Givin	C
Gorin	C
Gosport	C
Goss	B
Grable	B
Graceville	B
Granby	A/D
Grantcenter	B
Gravity	B
Grundy	C
Guckeen	C

SOIL SERIES	HYDROLOGIC SOIL GROUP
Hagener	A
Haig	C/D
Hamburg	B
Hanlon	A
Hanska	B/D
Harcot	B/D
Harps	B/D
Harpster	B/D
Havana	B
Havelock	B/D
Hawick	A
Hayden	B
Hayfield	B
Hayfield variant	B
Haynie	B
Hedrick	B
Hesch	B
Hesch variant	B
Histosols, fens	A/D
Hixton	B
Holly Springs	D
Hoopeston	A
Hoopeston variant	A
Hornick	C
Houghton	A/D
Humeston	C/D
Huntsville	B
Ida	B
Inton	B
Ion	B
Jackson	B
Jacwin	D
Jacwin variant	B
Jameston	C/D
Joliet	D
Judson	B
Kalona	C
Kamrar	B
Kanaranzi variant	B
Kandiyohi	C/D
Kasson	D
Keg	B
Kenmoor	B
Kennebec	B
Kensett	B
Kenyon	B
Keomah	B
Keosauqua	B
Keswick	C
Kilkenny	B
Killduff	B
Kingston	B
Klinger	B
Klingmore	B
Klossner	A/D
Klum	A
Kniffin	C
Knoke	B/D
Knox	B
Kossuth	B/D
Koszta	B
Lacrescent	B
Ladoga	B
Lakeport	B
Lamoni	C
Landes	A
Landes variant	B
Lanyon	C/D
Larpenteur	B
Lawler	B
Lawson	B
Le Sueur	B
Lemond	B/D
Lerdal	C
Lester	B
Letri	B/D
Lilah	A
Limecreek	B
Linder	B
Lindley	C
Lineville	C
Lineville variant	C
Liscomb	B
Liston	B
Loamy alluvial land	B
Lossing	D
Lourdes	C
Luana	B
Luther	B
Luton	D
Lycurgus	B
Macksburg	B
Madelia	B/D
Mahaska	B
Malvern	C
Marcus	B/D
Marlean	B

SOIL SERIES	HYDROLOGIC SOIL GROUP
Marna	C/D
Marquis	B
Marshall	B
Marshan	B/D
Martinsburg	B
Massbach	B
Maxfield	B/D
Maxmore	B/D
May City	B
Mayberry	D
Mayer	B/D
McCreath	B
McPaul	B
Medary	D
Medary variant	D
Millington	B/D
Minden	B
Minnetonka	D
Mixed alluvial land	B
Modale	C
Modale variant	C
Moingona	B
Moingona variant	B
Moneta	B
Monona	B
Montieth	B
Moody	B
Morconick	A
Mottland	B
Moville	C
Mt. Carroll	B
Mt. Sterling	B
Muck	A/D
Mula	B
Muscatine	B
Muskego	A/D
Mystic	C
Mystic variant	D

Nira	B
Napa	D
Napier	B
Nasset	B
Nevin	B
NewGlarus	C
Newvienna	B
Nicollet	B
Niota	D
Niota variant	D
Nishna	C/D

SOIL SERIES	HYDROLOGIC SOIL GROUP
Nodaway	B
Nordness	B
Northboro	C
Norville	B

Oakton	B
Ocheda	C
Ocheyedan	B
Ocheyedan lacustrine substratum	C
Okaw	D
Okoboji	B/D
Olin	B
Olin variant	B
Olmitz	B
Olmitz variant	B
Omadi	B
Omsrud	B
Onawa	D
Oran	B
Orion	C
Orwood	B
Ossian	B/D
Ostrander	B
Otley	B
Otter	B/D
Ottosen	B
Owego	D

Paintcreek	C
Palms	A/D
Peaty muck	A/D
Percival	C
Perks	A
Perks variant	A
Pershing	C
Pillot	B
Pinicon	B
Port Byron	B
Primghar	B
Primghar variant	B
Protivin	C

Quiver	B/D

Racine	B
Racine	D
Racoon	C/D
Raddle	B
Radford	B
Ransom	B

SOIL SERIES	HYDROLOGIC SOIL GROUP
Rathbun	D
Rawles	B
Readlyn	B
Reedscreek	B
Renova	B
Revere	B/D
Riceville	C
Richwood	B
Richwood variant	B
Ridgeport	A
Ridgeton	B
Rinda	D
Ripon	B
Riverwash	A
Rocksan	C
Rockton	B
Rodney	D
Roine	B
Rolfe	C
Rollingstone	C
Roseville	B
Rossfield	B
Rossfield variant	B
Rowley	B
Rozetta	B
Rubio	C/D
Rushmore	B/D
Rushville	D
Russell	B
Sable	B/D
Sac	B
Sac variant	B
Salida	A
Salix	B
Salix variant	B
Sarpy	A
Sattre	B
Saude	B
Sawmill	B/D
Schapville	C
Schley	B
Schley variant	B
Scroll	C
Seaton	B
Seymour	C
Shaffton	B
Shandep	B/D
Sharpsburg	B
Shelby	C
Shellwood	B
Shullsburg	C
Sigglekov	A
Smithland	B/D
Snider	C
Sogn	D
Solomon	D
Sparta	A
Sperry	C/D
Spicer	B/D
Spillco	B
Spillville	B/D
Steinauer	B
Storden	B
Strahan	B
Stronghurst	B
Sunburg	B
Taintor	C/D
Talcot	B/D
Tallula	B
Tama	B
Tama variant	B
Tell	B
Terril	B
Thebes	B
Thorp	C/D
Ticonic	A
Tieville	D
Tilfer	B/D
Timula	B
Titus	B/D
Toolesboro	B
Traer	B/D
Trent	B
Tripoli	B/D
Truman	B
Turlin	B
Turlin variant	B
Tuskeego	C/D
Udolpho	B/D
Udorthents	
Uturin	C/D
Vanmeter	C
Vesser	C
Village	B
Vinje	B
Volney	A

SOIL SERIES	HYDROLOGIC SOIL GROUP
Vore	B
Wabash	D
Wacousta	B/D
Wacousta variant	B/D
Wadena	B
Wadena variant	B
Waldorf	C/D
Walford	B/D
Wapsie	B
Wapsie variant	B
Watkins	B
Watseka	B
Waubeek	B
Waubonsie	B
Waucoma	B
Waukee	B
Waukee variant	B
Waukegan	B
Webster	B/D
Weller	C
Wentworth	B
Whalan	C
Whittier	B
Wilmonton	B
Wilsey	B
Winneshiek	B
Winneshiek variant	B
Winterset	C
Wiota	B
Woodbury	D
Worthen	B
Yellowriver	B
Zenor	B
Zook	C/D
Zwingle	D
Zwingle variant	D

HYDROLOGIC SOIL-COVER COMPLEXES

A combination of the effects of hydrologic soil group (soil) and the land use and treatment class (cover) is used to determine the runoff curve number (CN). The CN indicates the runoff potential of a soil-cover complex during periods when the soil is not frozen. The higher the CN, the higher the potential for runoff.

Land Use

Fallow is the land use with the highest potential for runoff because the land is kept as bare as possible to conserve moisture for use by a succeeding crop.

A row crop is any field crop planted in rows far enough apart that most of the soil surface is exposed to rainfall impact during the early growing season (i.e.: corn, soybeans, sorghum).

Small grain is planted in rows close enough together that the soil surface is not exposed except during planting and shortly thereafter.

Close-seeded legumes or rotation meadow are either planted in close rows or broadcast. This cover may be allowed to remain for more than a year so that year-round protection is given to the soil.

Pasture is a long term stand of forage plants which gives year-round protection to the soil.

Meadow is a field in which grass is continually grown, protected from grazing, and generally mowed for hay.

Woods are forested areas that have at least 30 percent canopy coverage as viewed by aerial photography.

Farmsteads include the area surrounding the farm headquarters including buildings, lots, driveways, etc.

Roads are improved travelways (not farm lanes). Hard surface roads include any type of asphalt or concrete paving. Road right-of-way is included in the total road area used to determine CN.

Treatment or Practice

Straight row fields are those farmed in straight rows either up and down hill or across the slope.

Contoured fields are those farmed as nearly as possible on the contour. The hydrologic effect of contouring is due to the surface storage provided by the furrows because the storage prolongs the time during which infiltration can take place. The magnitude of the storage depends not only on the dimensions of the furrows but also on the land slope, crop, and manner of planting and cultivation. See Contour Farming (330) in the Field Office Technical Guide for additional guidance.

The contoured and terraced condition is to be used for systems containing open-end level or graded terraces with grassed waterway outlets where all tillage is done on the contour between the terraces. The area above closed-end level terraces and terraces with tile outlets is to be included with the contoured area for runoff curve number computations.

Hydrologic Condition

Ratings as to “poor” or “good” are based largely on the proportion of dense vegetation in the rotation.

Pasture is considered poor if it is heavily grazed and has no mulch or has plant cover on less than half of the area. Fair pasture has plant cover on 50 to 75 percent of the area. Heavily grazed pasture in Iowa is generally considered to be fair pasture. Good pasture is lightly grazed and has plant cover on more than 75 percent of the area.

Poor woods are heavily grazed or are regularly burned and have no litter or new young growth. Fair woods are grazed but not burned. There may be some litter but these woods are not protected. Good woods are protected from grazing and have litter and shrubs covering the soil.

Table IA2-1 gives CN’s for agricultural land uses and for selected suburban and urban land uses.

Effects of Conservation Tillage

Cropland with conservation tillage and residue management practices will be considered to be in good hydrologic condition.

RUNOFF CURVE NUMBERS[1/]

TABLE IA2-1

COVER TYPE	LAND USE AND TREATMENT[2/]	HYDROLOGIC CONDITION[3/]	A	CN	B	CN	C	CN	D	CN
1	**FULLY DEVELOPED URBAN AREAS (Veg Est)**									
2	Open space (Lawns, parks, etc.)									
3	Poor condition; grass cover < 50%			68		79		86		89
4	Fair condition; grass cover 50% to 75%			49		69		79		84
5	Good condition; grass cover > 75%			39		61		74		80
6										
7	***Impervious Areas:***									
8	Paved parking lots, roofs, driveways			98		98		98		98
9										
10	Streets and roads:									
11	Paved; curbs and storm sewers			98		98		98		98
12	Paved; open ditches (w/ right-of-way)			83		89		92		93
13	Gravel (w/ right-of-way)			76		85		89		91
14	Dirt (w/ right-of-way)			72		82		87		89
15										
16	***Urban Districts***	Avg % Imperv								
17	Commercial & business	85		89		92		94		95
18	Industrial	72		81		88		91		93
19										
20	***Residential districts (by average lot size)***	Avg % Imperv								
21	1/8 acre (town houses)	65		77		85		90		92
22	1/4 acre	38		61		75		83		87
23	1/3 acre	30		57		72		81		86
24	1/2 acre	25		54		70		80		85
25	1 acre	20		51		68		79		84
26	2 acre	12		46		65		77		82
27										
28	***Western Desert Urban Areas***									
29	Natural desert (pervious areas only)			63		77		85		88
30	Artificial desert landscaping			96		96		96		96
31										
32	***User defined urban (Click button to define)***	Custom CN								
33	% Impervious Area:									
34	% Unconnected Impervious Area:									
35	Pervious Curve Number:									
36										
37	**DEVELOPING URBAN AREA (NO VEGETATION)**									
38	Newly graded area (pervious only)			77		86		91		94
39										
40	**CULTIVATED AGRICULTURAL LANDS**									
41	Fallow Bare soil	——		77		86		91		94
42	Fallow Crop residue (CR)	poor		76		85		90		93
43	Fallow Crop residue (CR)	good		74		83		88		90
44										
45	Row crop Straight row (SR)	poor		72		81		88		91
46	Straight row (SR)	good		67		78		85		89
47	SR + Crop residue	poor		71		80		87		90
48	SR + Crop residue	good		64		75		82		85
49	Contoured (C)	poor		70		79		84		88
50	Contoured (C)	good		65		75		82		86
51	C + Crop residue	poor		69		78		83		87
52	C + Crop residue	good		64		74		81		85
53	Cont & terraced (C&T)	poor		66		74		80		82
54	Cont & terraced (C&T)	good		62		71		78		81
55	C&T + Crop residue	poor		65		73		79		81
56	C&T + Crop residue	good		61		70		77		80
57										
58	Small grain Straight row (SR)	poor		65		76		84		88
59	Straight row (SR)	good		63		75		83		87

RUNOFF CURVE NUMBERS 1/

TABLE IA2-1

COVER TYPE	LAND USE AND TREATMENT 2/	HYDROLOGIC CONDITION	A	CN	B	CN	C	CN	D	CN
60	Rotational No-Till OR No-Till	Good		60		69		75		80

1/ Rotational No-Till – A mostly no-till operation but includes a mulch till or conventional till (full width tillage) operation once in a 2-7 year period. STIR (Soil Tillage Intensity Rating from RUSLE2) values are between 6-30.

2/ No-Till – Every year soil and residue are left undisturbed from harvest to planting except for nutrient injection. STIR values are between 0-5.

RUNOFF CURVE NUMBERS[1/]
TABLE IA2-1

COVER TYPE	LAND USE AND TREATMENT[2/]	HYDROLOGIC CONDITION[3/]	A	CN	B	CN	C	CN	D	CN
61	SR + Crop residue	poor		64		75		83		86
62	SR + Crop residue	good		60		72		80		84
63	Contoured (C)	poor		63		74		82		85
64	Contoured (C)	good		61		73		81		84
65	C + Crop residue	poor		62		73		81		84
66	C + Crop residue	good		60		72		80		83
67	Cont & terraced (C&T)	poor		61		72		79		82
68	Cont & terraced (C&T)	good		59		70		78		81
69	C&T + Crop residue	poor		60		71		78		81
70	C&T + Crop residue	good		58		69		77		80
71										
72	Close-seeded Straight Row	poor		66		77		85		89
73	legumes or Straight Row	good		58		72		81		85
74	rotation Contoured	poor		64		75		83		85
75	meadow Contoured	good		55		69		78		83
76	Cont & terraced	poor		63		73		80		83
77	Cont & terraced	good		51		67		76		80
78										
79	**OTHER AGRICULTURAL LANDS**									
80	Pasture, grassland or range[4/]	poor		68		79		86		89
81	Pasture, grassland or range	fair		49		69		79		84
82	Pasture, grassland or range	good		39		61		74		80
83										
84	Meadow - cont. grass (non grazed)			30		58		71		78
85										
86	Brush - brush, weed, grass mix[5/]	poor		48		67		77		83
87	Brush - brush, weed, grass mix	fair		35		56		70		77
88	Brush - brush, weed, grass mix	good		30[6/]		48		65		73
89										
90	Woods - grass combination[7/]	poor		57		73		82		86
91	Woods - grass combination	fair		43		65		76		82
92	Woods - grass combination	good		32		58		72		79
93										
94	Woods[8/]	poor		45		66		77		83
95	Woods	fair		36		60		73		79
96	Woods	good		30		55		70		77
97										
98	Farmsteads	——		59		74		82		86
99	Feedlots									
100	Earthen	——		90		90		90		90
101	Paved			98		98		98		98

1/ Average runoff condition, and I_a=0.2s.

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

3/ Hydrologic condition is based on combinations 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, (d) percent of residue cover on the land surface (good ≥20%), and (e) degree of surface toughness.
Poor: factors impair infiltration and tend to increase runoff.
Good: Factors encourage average and better than average infiltration and tend to decrease runoff.
For conservation tillage poor hydrologic condition, 5 to 20% of the surface is covered with residue (less than 750 pounds per acre for row crops or 300 pounds per acre for small grain).
For conservation tillage good hydrologic condition, more than 20% of the surface is covered with residue (greater than 750 pounds per acre for row crops or 300 pounds per acre for small grain).

4/ 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.

5/ Poor: <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

6/ If actual curve number is less than 30, use CN = 30 for runoff computation.

7/ CNs shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CNs for woods and pasture.

8/ 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 letter and brush adequately cover the soil.

RAINFALL FREQUENCY TABLES

The following rainfall frequency tables cover a majority of the situations encountered in design of conservation practices in Iowa. They are based upon information contained in U.S. Weather Bureau Technical Papers No. 40 and 49; Hydrometeorological Report 51; USDA-NRCS, National Engineering Handbook, Section 4, Hydrology; and USDA-NRCS, Technical Release 60. It is intended that these tables be used in conjunction with the Iowa Standards and Specifications for Conservation Practices and other appropriate design criteria.

Hydrologic Design Criteria

The hydrologic design criteria for detention structures are one of the following: A1, A2, A3, B, and C. Two considerations are given in classifying a detention structure; the hazard classification and the product (effective height of a dam times the storage).

With regard to hazard classification, **class (a) or "low" hazard** dams are structures located in areas where damages from a failure would be limited to loss of the dam, loss of livestock, damages to farm out-buildings, agricultural land, and lesser used roads, and where loss of human life is considered unlikely. **Class (b) or "significant" hazard** dams are structures located in areas where failure may damage industrial or commercial buildings, moderately traveled roads or railroads, interrupt major utility services, but without substantial risk of loss of human life. **Class (c) or "high" hazard dams** are structures located in areas where failure may create a serious threat of loss of human life or result in serious damage to residential, industrial or commercial areas, important public utilities, public buildings, or major transportation facilities.

Class (a) or "low hazard" structures are further broken down into 3 classes based upon their product (the effective height of a dam times the storage). The classes are:

A1 = product less than 3,000. Use this design class for NHCP-378 structures, not TR-60 structures.

A2 = product 3,000 to 30,000 (TR-60)

A3 = product greater than 30,000 (TR-60)

QUICK RETURN FLOW BY COUNTY
See NEH, Part 630, Hydrology, Chapter 21

COUNTY	C.S.M.*
ADAIR	4
ADAMS	4
ALLAMAKEE	4
APPANOOSE	4
AUDUBON	3.5
BENTON	4
BLACK HAWK	4
BOONE	4
BREMER	4
BUCHANAN	4
BUENA VISTA	3
BUTLER	4
CALHOUN	3.5
CARROLL	3.5
CASS	3.5
CEDAR	4
CERRO GORDO	4
CHEROKEE	2.5
CHICKASAW	4
CLARKE	4
CLAY	3
CLAYTON	4
CLINTON	4
CRAWFORD	3
DALLAS	4
DAVIS	4
DECATUR	4
DELAWARE	4
DES MOINES	4
DICKINSON	3
DUBUQUE	4
EMMET	3.5
FAYETTE	4
FLOYD	4
FRANKLIN	4
FREMONT	3
GREENE	4
GRUNDY	4
GUTHRIE	4
HAMILTON	4
HANCOCK	4
HARDIN	4
HARRISON	2.5
HENRY	4
HOWARD	4
HUMBOLDT	4
IDA	3
IOWA	4
JACKSON	4
JASPER	4

COUNTY	C.S.M.*
JEFFERSON	4
JOHNSON	4
JONES	4
KEOKUK	4
KOSSUTH	4
LEE	4
LINN	4
LOUISA	4
LUCAS	4
LYON	2
MADISON	4
MAHASKA	4
MARION	4
MARSHALL	4
MILLS	3
MITCHELL	4
MONONA	2.5
MONROE	4
MONTGOMERY	3.5
MUSCATINE	4
OBRIEN	2.5
OSCEOLA	2.5
PAGE	3.5
PALO ALTO	3.5
PLYMOUTH	2
POCAHONTAS	3.5
POLK	4
POTTAWATTAMIE	3
POWESHIEK	4
RINGGOLD	4
SAC	3
SCOTT	4
SHELBY	3
SIOUX	2
STORY	4
TAMA	4
TAYLOR	4
UNION	4
VAN BUREN	4
WAPELLO	4
WARREN	4
WASHINGTON	4
WAYNE	4
WEBSTER	4
WINNEBAGO	4
WINNESHIEK	4
WOODBURY	2
WORTH	4
WRIGHT	4

* C.S.M. = cu.ft/sec/sq.mi.

6-HOUR RAINFALL DEPTHS FOR IOWA (inches)

COUNTY	5-Yr	10-Yr	25-Yr	50-Yr	Class "a" AS & 100-Yr	Class "a" FB&Class "b" AS	Class b" FB	Class "c" AS	Class "c" FB/PMP
ADAIR	3.1	3.7	4.2	4.7	5.3	7.8	13.7	10.7	26.6
ADAMS	3.2	3.7	4.3	4.8	5.3	7.9	13.8	10.8	26.7
ALLAMAKEE	2.8	3.3	3.7	4.2	4.6	7.1	12.9	10.0	25.3
APPANOOSE	3.1	3.7	4.3	4.7	5.2	7.8	13.9	10.9	27.0
AUDUBON	3.1	3.6	4.2	4.7	5.2	7.7	13.6	10.6	26.3
BENTON	3.0	3.5	4.0	4.4	4.9	7.4	13.4	10.4	26.3
BLACK HAWK	2.9	3.4	3.9	4.4	4.8	7.3	13.3	10.3	25.9
BOONE	3.1	3.6	4.1	4.6	5.1	7.6	13.5	10.6	26.2
BREMER	2.9	3.4	3.8	4.3	4.8	7.3	13.2	10.2	25.7
BUCHANAN	2.9	3.4	3.9	4.3	4.8	7.3	13.3	10.3	25.9
BUENA VISTA	2.9	3.4	3.9	4.5	4.9	7.4	13.2	10.3	25.5
BUTLER	2.9	3.4	3.9	4.4	4.8	7.3	13.2	10.3	25.8
CALHOUN	3.0	3.5	4.0	4.6	5.0	7.5	13.4	10.4	25.9
CARROLL	3.1	3.6	4.1	4.6	5.1	7.6	13.5	10.5	26.2
CASS	3.1	3.6	4.2	4.7	5.3	7.8	13.7	10.7	26.5
CEDAR	2.9	3.4	3.9	4.4	4.8	7.4	13.4	10.5	26.5
CERRO GORDO	2.9	3.4	3.9	4.4	4.8	7.3	13.1	10.2	25.4
CHEROKEE	2.9	3.4	3.9	4.4	4.9	7.4	13.1	10.2	25.5
CHICKASAW	2.9	3.3	3.8	4.3	4.7	7.2	13.0	10.1	25.5
CLARKE	3.2	3.7	4.3	4.8	5.3	7.8	13.9	10.9	26.8
CLAY	2.9	3.3	3.9	4.4	4.8	7.3	13.0	10.1	25.3
CLAYTON	2.9	3.3	3.8	4.2	4.7	7.2	13.1	10.1	25.6
CLINTON	2.9	3.4	3.9	4.3	4.7	7.3	13.3	10.4	26.5
CRAWFORD	3.0	3.5	4.1	4.6	5.1	7.5	13.4	10.5	26.1
DALLAS	3.1	3.6	4.2	4.7	5.1	7.7	13.6	10.7	26.4
DAVIS	3.1	3.6	4.2	4.7	5.2	7.8	13.9	10.9	27.0
DECATUR	3.2	3.7	4.3	4.8	5.3	7.9	13.9	11.0	26.9
DELAWARE	2.9	3.3	3.8	4.3	4.7	7.3	13.3	10.3	25.8
DES MOINES	3.1	3.5	4.1	4.5	4.9	7.6	13.7	10.7	26.9
DICKINSON	2.8	3.3	3.8	4.4	4.7	7.2	12.9	10.0	25.2
DUBUQUE	2.8	3.3	3.8	4.2	4.7	7.2	13.2	10.3	25.8
EMMET	2.8	3.3	3.8	4.4	4.8	7.2	12.9	10.0	25.2
FAYETTE	2.9	3.3	3.8	4.3	4.7	7.2	13.1	10.1	25.6
FLOYD	2.9	3.4	3.8	4.3	4.8	7.2	13.0	10.2	25.5
FRANKLIN	2.9	3.4	3.9	4.4	4.9	7.4	13.3	10.3	25.8
FREMONT	3.2	3.7	4.3	4.8	5.3	7.9	13.8	10.9	26.7
GREENE	3.1	3.6	4.1	4.6	5.1	7.6	13.5	10.5	26.2
GRUNDY	2.9	3.5	3.9	4.4	4.9	7.4	13.4	10.4	26.0
GUTHRIE	3.1	3.6	4.2	4.7	5.2	7.7	13.6	10.7	26.4
HAMILTON	3.0	3.5	4.0	4.5	5.0	7.5	13.4	10.4	26.0
HANCOCK	2.9	3.4	3.9	4.4	4.9	7.3	13.1	10.2	25.4
HARDIN	3.0	3.5	4.0	4.5	4.9	7.4	13.4	10.4	26.0
HARRISON	3.0	3.5	4.1	4.6	5.1	7.6	13.5	10.5	26.3
HENRY	3.1	3.5	4.1	4.5	5.0	7.7	13.7	10.7	26.9
HOWARD	2.8	3.3	3.7	4.2	4.7	7.1	12.9	10.1	25.3
HUMBOLDT	3.0	3.4	4.0	4.5	4.9	7.4	13.2	10.3	25.6
IDA	2.9	3.5	4.0	4.5	4.9	7.4	13.3	10.3	25.8

6-HOUR RAINFALL DEPTHS FOR IOWA (inches)

COUNTY	5-Yr	10-Yr	25-Yr	50-Yr	Class "a" AS & 100-Yr	Class "a" FB&Class "b" AS	Class b" FB	Class "c" AS	Class "c" FB/PMP
IOWA	3.0	3.5	4.0	4.5	4.9	7.4	13.5	10.5	26.5
JACKSON	2.8	3.3	3.8	4.2	4.7	7.2	13.3	10.3	26.3
JASPER	3.0	3.6	4.1	4.6	5.1	7.6	13.6	10.7	26.4
JEFFERSON	3.1	3.6	4.1	4.6	5.1	7.7	13.7	10.7	26.9
JOHNSON	3.0	3.5	4.0	4.4	4.9	7.4	13.5	10.5	26.5
JONES	2.9	3.4	3.9	4.3	4.8	7.3	13.3	10.4	26.3
KEOKUK	3.1	3.6	4.1	4.6	5.0	7.6	13.7	10.7	26.7
KOSSUTH	2.9	3.4	3.9	4.4	4.8	7.3	13.0	10.2	25.3
LEE	3.1	3.6	4.1	4.6	5.1	7.7	13.8	10.8	27.0
LINN	2.9	3.4	3.9	4.4	4.8	7.4	13.4	10.4	26.3
LOUISA	3.0	3.5	4.0	4.5	4.9	7.6	13.6	10.6	26.7
LUCAS	3.1	3.7	4.2	4.7	5.2	7.8	13.9	10.9	26.8
LYON	2.7	3.2	3.7	4.3	4.7	7.2	12.9	10.0	25.1
MADISON	3.1	3.7	4.2	4.7	5.3	7.8	13.7	10.8	26.6
MAHASKA	3.1	3.6	4.1	4.6	5.1	7.7	13.7	10.7	26.8
MARION	3.1	3.6	4.2	4.7	5.1	7.7	13.7	10.7	26.8
MARSHALL	3.1	3.5	4.0	4.5	5.0	7.5	13.5	10.5	26.2
MILLS	3.1	3.6	4.2	4.8	5.3	7.8	13.7	10.8	26.6
MITCHELL	2.8	3.3	3.7	4.3	4.7	7.2	12.9	10.1	25.3
MONONA	2.9	3.5	4.0	4.6	5.0	7.5	13.4	10.4	26.0
MONROE	3.1	3.6	4.2	4.7	5.2	7.8	13.8	10.8	26.9
MONTGOMERY	3.1	3.7	4.3	4.8	5.3	7.8	13.8	10.8	26.7
MUSCATINE	3.1	3.4	4.0	4.4	4.9	7.5	13.5	10.5	26.6
OBRIEN	2.9	3.3	3.8	4.4	4.8	7.2	13.0	10.1	25.3
OSCEOLA	2.8	3.3	3.7	4.3	4.7	7.2	12.9	10.0	25.2
PAGE	3.2	3.7	4.3	4.8	5.4	7.9	13.9	10.9	26.8
PALO ALTO	2.9	3.4	3.9	4.4	4.9	7.3	13.1	10.1	25.4
PLYMOUTH	2.9	3.4	3.9	4.4	4.8	7.3	13.1	10.2	25.5
POCAHONTAS	2.9	3.4	4.0	4.5	4.9	7.4	13.3	10.3	25.5
POLK	3.1	3.6	4.1	4.6	5.1	7.6	13.6	10.7	26.4
POTTAWATTAMIE	3.1	3.6	4.2	4.7	5.2	7.7	13.6	10.7	26.5
POWESHIEK	3.0	3.5	4.0	4.5	5.0	7.6	13.5	10.6	26.5
RINGGOLD	3.2	3.7	4.3	4.8	5.4	8.0	13.9	10.9	26.9
SAC	3.0	3.5	4.0	4.5	5.0	7.5	13.3	10.3	25.8
SCOTT	2.9	3.4	3.9	4.3	4.7	7.4	13.4	10.5	26.6
SHELBY	3.1	3.6	4.1	4.7	5.2	7.6	13.5	10.6	26.2
SIOUX	2.8	3.3	3.8	4.3	4.7	7.2	12.9	10.1	25.3
STORY	3.1	3.6	4.1	4.6	5.1	7.5	13.5	10.5	26.2
TAMA	3.0	3.5	4.0	4.5	4.9	7.4	13.4	10.5	26.2
TAYLOR	3.2	3.7	4.3	4.8	5.4	8.0	13.9	10.9	26.8
UNION	3.2	3.7	4.3	4.8	5.3	7.9	13.9	10.9	26.8
VAN BUREN	3.1	3.6	4.2	4.6	5.1	7.8	13.8	10.9	27.0
WAPELLO	3.1	3.6	4.2	4.6	5.1	7.8	13.7	10.8	26.9
WARREN	3.1	3.6	4.2	4.7	5.2	7.8	13.7	10.8	26.6
WASHINGTON	3.0	3.5	4.1	4.5	4.9	7.6	13.6	10.6	26.7
WAYNE	3.2	3.7	4.3	4.8	5.3	7.9	13.9	10.9	27.0
WEBSTER	3.0	3.5	4.0	4.5	5.0	7.5	13.4	10.4	25.9

6-HOUR RAINFALL DEPTHS FOR IOWA (inches)

COUNTY	5-Yr	10-Yr	25-Yr	50-Yr	Class "a" AS & 100-Yr	Class "a" FB&Class "b" AS	Class "b" FB	Class "c" AS	Class "c" FB/PMP
WINNEBAGO	2.8	3.3	3.8	4.4	4.7	7.2	13.0	10.1	25.2
WINNESHIEK	2.8	3.3	3.7	4.2	4.6	7.1	12.9	10.0	25.3
WOODBURY	2.9	3.4	3.9	4.5	4.9	7.4	13.2	10.3	25.8
WORTH	2.8	3.3	3.8	4.3	4.7	7.2	13.0	10.1	25.2
WRIGHT	2.9	3.4	4.0	4.5	4.9	7.4	13.3	10.3	25.6

24-HOUR RAINFALL DEPTHS BY COUNTY (inches)

COUNTY	2 Yrs	5 Yrs	10 Yrs	25 Yrs	50 Yrs	100 Yrs
ADAIR	3.2	4.1	4.8	5.6	6.2	6.8
ADAMS	3.2	4.2	4.8	5.6	6.3	6.9
ALLAMAKEE	3.0	3.8	4.3	5.0	5.5	6.2
APPANOOSE	3.3	4.2	4.9	5.6	6.2	6.9
AUDUBON	3.1	4.0	4.7	5.4	6.1	6.7
BENTON	3.1	4.0	4.6	5.3	5.8	6.5
BLACK HAWK	3.1	3.9	4.5	5.2	5.8	6.5
BOONE	3.0	4.0	4.7	5.4	6.0	6.6
BREMER	3.1	3.9	4.5	5.2	5.7	6.4
BUCHANAN	3.1	3.9	4.5	5.2	5.7	6.4
BUENA VISTA	3.0	3.8	4.4	5.1	5.8	6.4
BUTLER	3.1	3.9	4.5	5.2	5.8	6.5
CALHOUN	3.1	3.9	4.5	5.3	5.9	6.5
CARROLL	3.1	4.0	4.6	5.3	6.0	6.6
CASS	3.1	4.1	4.8	5.5	6.2	6.8
CEDAR	3.1	4.0	4.5	5.2	5.7	6.5
CERRO GORDO	3.0	3.9	4.5	5.2	5.7	6.4
CHEROKEE	3.0	3.8	4.4	5.1	5.8	6.3
CHICKASAW	3.0	3.9	4.4	5.1	5.7	6.4
CLARKE	3.2	4.2	4.9	5.6	6.3	6.9
CLAY	3.0	3.8	4.4	5.1	5.7	6.3
CLAYTON	3.1	3.8	4.4	5.1	5.6	6.3
CLINTON	3.1	3.9	4.5	5.1	5.6	6.4
CRAWFORD	3.0	3.9	4.5	5.3	6.0	6.6
DALLAS	3.2	4.1	4.7	5.5	6.1	6.7
DAVIS	3.3	4.2	4.8	5.6	6.2	6.8
DECATUR	3.3	4.2	4.9	5.7	6.4	7.0
DELAWARE	3.1	3.9	4.5	5.1	5.7	6.4
DES MOINES	3.2	4.1	4.7	5.4	5.9	6.7
DICKINSON	2.9	3.7	4.3	5.0	5.6	6.2
DUBUQUE	3.1	3.9	4.4	5.1	5.6	6.3
EMMET	3.0	3.8	4.4	5.0	5.7	6.3
FAYETTE	3.0	3.9	4.4	5.1	5.6	6.4

24-HOUR RAINFALL DEPTHS BY COUNTY (inches)

COUNTY	2 Yrs	5 Yrs	10 Yrs	25 Yrs	50 Yrs	100 Yrs
FLOYD	3.0	3.9	4.5	5.2	5.7	6.4
FRANKLIN	3.1	3.9	4.5	5.2	5.8	6.5
FREMONT	3.2	4.1	4.8	5.6	6.3	6.9
GREENE	3.1	4.0	4.6	5.4	6.0	6.6
GRUNDY	3.1	4.0	4.6	5.3	5.8	6.5
GUTHRIE	3.1	4.1	4.7	5.5	6.1	6.7
HAMILTON	3.1	4.0	4.6	5.3	5.9	6.6
HANCOCK	3.0	3.9	4.5	5.2	5.7	6.4
HARDIN	3.1	4.0	4.6	5.3	5.9	6.6
HARRISON	3.0	3.9	4.6	5.3	6.0	6.6
HENRY	3.2	4.1	4.7	5.4	6.0	6.7
HOWARD	3.0	3.8	4.4	5.1	5.6	6.3
HUMBOLDT	3.1	3.9	4.5	5.2	5.8	6.5
IDA	3.0	3.8	4.5	5.2	5.9	6.4
IOWA	3.2	4.1	4.7	5.3	5.9	6.6
JACKSON	3.1	3.9	4.4	5.0	5.6	6.4
JASPER	3.2	4.1	4.7	5.5	6.0	6.7
JEFFERSON	3.2	4.2	4.8	5.4	6.0	6.8
JOHNSON	3.2	4.0	4.6	5.3	5.8	6.6
JONES	3.1	3.9	4.5	5.1	5.7	6.4
KEOKUK	3.2	4.1	4.7	5.4	6.0	6.7
KOSSUTH	3.0	3.8	4.4	5.1	5.7	6.4
LEE	3.3	4.2	4.8	5.4	6.0	6.8
LINN	3.1	4.0	4.6	5.2	5.8	6.5
LOUISA	3.2	4.1	4.7	5.4	5.9	6.6
LUCAS	3.2	4.2	4.8	5.6	6.2	6.9
LYON	2.8	3.6	4.2	4.9	5.5	6.1
MADISON	3.2	4.1	4.8	5.6	6.2	6.8
MAHASKA	3.2	4.1	4.8	5.5	6.1	6.8
MARION	3.2	4.1	4.8	5.5	6.1	6.8
MARSHALL	3.2	4.0	4.7	5.4	5.9	6.6
MILLS	3.1	4.1	4.8	5.5	6.2	6.8
MITCHELL	3.0	3.8	4.4	5.1	5.6	6.3
MONONA	3.0	3.8	4.5	5.2	5.9	6.5
MONROE	3.3	4.2	4.8	5.6	6.2	6.8
MONTGOMERY	3.2	4.1	4.8	5.6	6.3	6.8
MUSCATINE	3.2	4.0	4.6	5.2	5.8	6.5
OBRIEN	2.9	3.7	4.3	5.0	5.7	6.2
OSCEOLA	2.9	3.7	4.3	4.9	5.6	6.2
PAGE	3.2	4.2	4.9	5.7	6.4	6.9
PALO ALTO	3.0	3.8	4.4	5.1	5.7	6.4
PLYMOUTH	2.9	3.7	4.3	5.0	5.7	6.2
POCAHONTAS	3.0	3.9	4.5	5.2	5.8	6.4
POLK	3.2	4.1	4.7	5.5	6.1	6.7
POTTAWATTAMIE	3.1	4.0	4.7	5.4	6.1	6.7

24-HOUR RAINFALL DEPTHS BY COUNTY (inches)

COUNTY	2 Yrs	5 Yrs	10 Yrs	25 Yrs	50 Yrs	100 Yrs
POWESHIEK	3.2	4.1	4.7	5.4	6.0	6.7
RINGGOLD	3.2	4.2	4.9	5.7	6.4	7.0
SAC	3.0	3.9	4.5	5.2	5.9	6.5
SCOTT	3.1	4.0	4.5	5.1	5.7	6.4
SHELBY	3.1	4.0	4.6	5.4	6.1	6.7
SIOUX	2.9	3.6	4.2	4.9	5.6	6.1
STORY	3.1	4.0	4.7	5.4	6.0	6.6
TAMA	3.1	4.0	4.6	5.3	5.9	6.6
TAYLOR	3.2	4.2	4.9	5.7	6.4	7.0
UNION	3.2	4.2	4.9	5.6	6.3	6.9
VAN BUREN	3.3	4.2	4.8	5.5	6.1	6.8
WAPELLO	3.2	4.2	4.8	5.5	6.1	6.8
WARREN	3.2	4.2	4.8	5.6	6.2	6.8
WASHINGTON	3.2	4.1	4.7	5.4	5.9	6.7
WAYNE	3.3	4.2	4.9	5.7	6.3	6.9
WEBSTER	3.1	4.0	4.6	5.3	5.9	6.6
WINNEBAGO	3.0	3.8	4.4	5.1	5.7	6.4
WINNESHIEK	3.0	3.8	4.4	5.1	5.6	6.3
WOODBURY	2.9	3.8	4.4	5.1	5.8	6.3
WORTH	3.0	3.8	4.4	5.1	5.7	6.4
WRIGHT	3.1	3.9	4.5	5.2	5.8	6.5

5 POINT RAINFALL DISTRIBUTION AND FREEBOARD RAINFALL DEPTHS

Technical Release 60 (TR-60), Earth Dams and Reservoirs, dated July 2005, requires both a 6-hour and a 24-hour storm be routed for the freeboard storm. The most critical result is to be used to check the discharge capacity and the integrity of the auxiliary spillway.

The stability, or auxiliary, design hydrograph will continue to use the 6-hour duration storm for velocities and maximum stresses on the auxiliary spillway.

Technical Release 60 allows the user to choose between two rainfall distributions for the 24-hour storm. These are called a Type B distribution and a 5 Point distribution. The SITES routings in Iowa will be completed using the 5 Point distribution for the 24-hour storm.

The following table lists the values for each of the five hydrograph points to be used with the 24-hour distribution. In addition, the freeboard storm rainfall depth is shown for each hazard class by county. The data in this table is to be used when doing freeboard design routings for TR-60 structures using the SITES program.

COUNTY	Point 1	Point 2	Point 3	Point 4	Point 5	A2 Hazard Class (Less than 30,000 Product) Rainfall (in)	A2 Hazard Class (Greater than 30,000 Product) Rainfall (in)	A3-B Hazard Class Rainfall (in)	C Hazard Class Rainfall (in)
ADAIR	0.0	0.025	0.837	0.975	1.0	9.9	13.5	17.1	32.6
ADAMS	0.0	0.024	0.838	0.976	1.0	10.0	13.6	17.3	32.8
ALLAMAKEE	0.0	0.027	0.844	0.973	1.0	9.2	12.7	16.2	31.0
APPANOOSE	0.0	0.023	0.835	0.977	1.0	10.0	13.7	17.3	33.0
AUDUBON	0.0	0.025	0.842	0.975	1.0	9.8	13.3	16.9	32.2
BENTON	0.0	0.025	0.841	0.975	1.0	9.6	13.2	16.7	32.0
BLACK HAWK	0.0	0.027	0.839	0.973	1.0	9.5	13.1	16.6	31.7
BOONE	0.0	0.023	0.842	0.977	1.0	9.7	13.2	16.8	32.0
BREMER	0.0	0.024	0.837	0.976	1.0	9.5	13.0	16.5	31.5
BUCHANAN	0.0	0.025	0.842	0.975	1.0	9.5	13.0	16.5	31.6
BUENA VISTA	0.0	0.027	0.837	0.973	1.0	9.4	12.9	16.4	31.5
BUTLER	0.0	0.030	0.840	0.970	1.0	9.5	13.0	16.5	31.6
CALHOUN	0.0	0.027	0.838	0.973	1.0	9.5	13.1	16.6	31.7
CARROLL	0.0	0.027	0.842	0.973	1.0	9.6	13.2	16.8	32.0
CASS	0.0	0.026	0.842	0.974	1.0	9.9	13.5	17.1	32.5
CEDAR	0.0	0.025	0.844	0.975	1.0	9.6	13.2	16.7	32.1
CERRO GORDO	0.0	0.027	0.838	0.973	1.0	9.4	12.8	16.3	31.2
CHICKASAW	0.0	0.024	0.840	0.976	1.0	9.3	12.8	16.3	31.3
CHEROKEE	0.0	0.028	0.844	0.972	1.0	9.3	12.8	16.2	31.0
CLARKE	0.0	0.023	0.837	0.977	1.0	10.0	13.6	17.3	32.8
CLAY	0.0	0.030	0.840	0.970	1.0	9.3	12.8	16.3	31.2
CLAYTON	0.0	0.024	0.847	0.976	1.0	9.3	12.7	16.2	31.0
CLINTON	0.0	0.027	0.845	0.973	1.0	9.5	13.1	16.6	32.0

5 POINT RAINFALL DISTRIBUTION AND FREEBOARD RAINFALL DEPTHS

COUNTY	Point 1	Point 2	Point 3	Point 4	Point 5	A2 Hazard Class (Less than 30,000 Product) Rainfall (in)	A2 Hazard Class (Greater than 30,000 Product) Rainfall (in)	A3-B Hazard Class Rainfall (in)	C Hazard Class Rainfall (in)
CRAWFORD	0.0	0.031	0.843	0.969	1.0	9.6	13.1	16.7	31.8
DALLAS	0.0	0.023	0.837	0.977	1.0	9.8	13.4	17.0	32.3
DAVIS	0.0	0.023	0.838	0.977	1.0	10.0	13.6	17.3	33.0
DECATUR	0.0	0.023	0.835	0.977	1.0	10.1	13.7	17.4	33.0
DELAWARE	0.0	0.028	0.842	0.972	1.0	9.4	12.9	16.5	31.6
DES MOINES	0.0	0.026	0.838	0.974	1.0	9.9	13.5	17.2	33.0
DICKINSON	0.0	0.029	0.842	0.971	1.0	9.2	12.7	16.2	31.0
DUBUQUE	0.0	0.027	0.843	0.973	1.0	9.4	12.9	16.4	31.5
EMMET	0.0	0.029	0.842	0.971	1.0	9.3	12.7	16.2	31.0
FAYETTE	0.0	0.027	0.845	0.973	1.0	9.3	12.8	16.3	31.2
FLOYD	0.0	0.029	0.840	0.971	1.0	9.4	12.9	16.4	31.3
FRANKLIN	0.0	0.027	0.840	0.973	1.0	9.5	13.0	16.5	31.5
FREMONT	0.0	0.024	0.834	0.976	1.0	10.0	13.6	17.3	32.8
GREENE	0.0	0.027	0.841	0.973	1.0	9.7	13.2	16.8	32.0
GRUNDY	0.0	0.028	0.840	0.972	1.0	9.6	13.1	16.7	31.8
GUTHRIE	0.0	0.028	0.842	0.972	1.0	9.8	13.4	16.9	32.3
HAMILTON	0.0	0.028	0.840	0.972	1.0	9.6	13.1	16.7	31.8
HANCOCK	0.0	0.032	0.841	0.968	1.0	9.4	12.9	16.4	31.4
HARDIN	0.0	0.027	0.844	0.973	1.0	9.6	13.1	16.6	31.7
HARRISON	0.0	0.027	0.842	0.973	1.0	9.6	13.2	16.8	32.0
HENRY	0.0	0.023	0.838	0.977	1.0	9.8	13.5	17.1	32.8
HOWARD	0.0	0.029	0.842	0.971	1.0	9.3	12.7	16.2	31.0
HUMBOLDT	0.0	0.029	0.844	0.971	1.0	9.5	13.0	16.5	31.4
IDA	0.0	0.030	0.841	0.970	1.0	9.5	13.0	16.6	31.7
IOWA	0.0	0.023	0.841	0.977	1.0	9.7	13.3	16.9	32.3
JACKSON	0.0	0.024	0.849	0.976	1.0	9.4	12.9	16.4	31.5
JASPER	0.0	0.025	0.842	0.975	1.0	9.8	13.3	16.9	32.2
JEFFERSON	0.0	0.021	0.838	0.979	1.0	9.9	13.5	17.2	32.8
JOHNSON	0.0	0.023	0.841	0.977	1.0	9.6	13.2	16.8	32.2
JONES	0.0	0.024	0.847	0.976	1.0	9.5	13.0	16.6	31.7
KEOKUK	0.0	0.023	0.844	0.977	1.0	9.8	13.4	17.0	32.4
KOSSUTH	0.0	0.030	0.845	0.970	1.0	9.3	12.8	16.3	31.2
LEE	0.0	0.023	0.838	0.977	1.0	9.9	13.6	17.3	33.0
LINN	0.0	0.027	0.845	0.973	1.0	9.6	13.1	16.7	32.0
LOUISA	0.0	0.025	0.843	0.975	1.0	9.8	13.4	17.0	32.5
LUCAS	0.0	0.023	0.837	0.977	1.0	10.0	13.6	17.3	32.8
LYON	0.0	0.028	0.837	0.972	1.0	9.0	12.5	16.0	30.9
MADISON	0.0	0.026	0.842	0.974	1.0	9.9	13.5	17.1	32.5

5 POINT RAINFALL DISTRIBUTION AND FREEBOARD RAINFALL DEPTHS

COUNTY	Point 1	Point 2	Point 3	Point 4	Point 5	A2 Hazard Class (Less than 30,000 Product) Rainfall (in)	A2 Hazard Class (Greater than 30,000 Product) Rainfall (in)	A3-B Hazard Class Rainfall (in)	C Hazard Class Rainfall (in)
MAHASKA	0.0	0.022	0.840	0.978	1.0	9.8	13.4	17.1	32.5
MARION	0.0	0.023	0.842	0.977	1.0	9.9	13.5	17.1	32.5
MARSHALL	0.0	0.023	0.842	0.977	1.0	9.7	13.2	16.8	32.0
MILLS	0.0	0.026	0.836	0.974	1.0	9.9	13.5	17.2	32.7
MITCHELL	0.0	0.027	0.840	0.973	1.0	9.3	12.7	16.2	31.0
MONONA	0.0	0.027	0.842	0.973	1.0	9.5	13.0	16.6	31.7
MONROE	0.0	0.024	0.836	0.976	1.0	10.0	13.6	17.3	32.9
MONTGOMERY	0.0	0.023	0.839	0.977	1.0	9.9	13.5	17.2	32.6
MUSCATINE	0.0	0.023	0.841	0.977	1.0	9.7	13.3	16.9	32.4
O'BRIEN	0.0	0.029	0.840	0.971	1.0	9.2	12.7	16.2	31.2
OSCEOLA	0.0	0.031	0.837	0.969	1.0	9.1	12.6	16.1	31.0
PAGE	0.0	0.027	0.836	0.973	1.0	10.0	13.7	17.3	33.0
PALO ALTO	0.0	0.030	0.842	0.970	1.0	9.3	12.8	16.3	31.3
PLYMOUTH	0.0	0.030	0.839	0.970	1.0	9.2	12.8	16.3	31.4
POCAHONTAS	0.0	0.029	0.841	0.971	1.0	9.5	13.0	16.5	31.5
POLK	0.0	0.025	0.842	0.975	1.0	9.8	13.4	16.9	32.3
POTTAWATTAMIE	0.0	0.026	0.838	0.974	1.0	9.8	13.4	17.0	32.5
POWESHIEK	0.0	0.026	0.844	0.974	1.0	9.7	13.3	16.9	32.3
RINGGOLD	0.0	0.023	0.832	0.977	1.0	10.1	13.7	17.4	33.0
SAC	0.0	0.028	0.836	0.972	1.0	9.5	13.1	16.6	31.8
SCOTT	0.0	0.025	0.844	0.975	1.0	9.5	13.1	16.7	32.1
SHELBY	0.0	0.029	0.838	0.971	1.0	9.7	13.3	17.0	32.4
SIOUX	0.0	0.027	0.840	0.973	1.0	9.1	12.6	16.1	31.0
STORY	0.0	0.024	0.845	0.976	1.0	9.7	13.2	16.8	31.9
TAMA	0.0	0.023	0.839	0.977	1.0	9.6	13.2	16.8	32.0
TAYLOR	0.0	0.023	0.832	0.977	1.0	10.1	13.7	17.4	33.0
UNION	0.0	0.023	0.836	0.977	1.0	10.0	13.6	17.2	32.7
VAN BUREN	0.0	0.023	0.835	0.977	1.0	9.9	13.6	17.3	33.0
WAPELLO	0.0	0.021	0.835	0.979	1.0	9.9	13.6	17.2	32.8
WARREN	0.0	0.021	0.837	0.979	1.0	9.9	13.5	17.1	32.6
WASHINGTON	0.0	0.023	0.844	0.977	1.0	9.7	13.3	17.0	32.4
WAYNE	0.0	0.023	0.838	0.977	1.0	10.1	13.7	17.4	33.0
WEBSTER	0.0	0.028	0.836	0.972	1.0	9.6	13.1	16.7	31.8
WINNEBAGO	0.0	0.027	0.840	0.973	1.0	9.3	12.8	16.2	31.0
WINNESHIEK	0.0	0.027	0.844	0.973	1.0	9.2	12.7	16.2	31.0
WOODBURY	0.0	0.028	0.839	0.972	1.0	9.3	12.9	16.4	31.6
WORTH	0.0	0.027	0.840	0.973	1.0	9.3	12.8	16.2	31.0
WRIGHT	0.0	0.027	0.840	0.973	1.0	9.5	13.0	16.5	31.5

10-DAY RAINFALL (inches)

COUNTY	25-yr 10-day	50-yr 10-day	100-yr 10-day
ADAIR	9.5	10.7	11.5
ADAMS	9.5	10.7	11.7
ALLAMAKEE	9.3	10.6	11.4
APPANOOSE	10.0	11.7	12.3
AUDUBON	9.3	10.2	11.3
BENTON	9.6	11.2	11.7
BLACK HAWK	9.5	10.9	11.6
BOONE	9.5	10.8	11.5
BREMER	9.3	10.9	11.6
BUCHANAN	9.5	10.9	11.6
BUENA VISTA	8.8	9.8	10.8
BUTLER	9.4	10.9	11.6
CALHOUN	9.2	10.2	11.0
CARROLL	9.2	10.2	11.0
CASS	9.5	10.5	11.4
CEDAR	9.5	11.2	11.7
CERRO GORDO	9.3	10.7	11.4
CHEROKEE	8.7	9.5	10.5
CHICKASAW	9.3	10.8	11.5
CLARKE	9.8	11.4	12.0
CLAY	8.7	9.7	10.7
CLAYTON	9.3	10.8	11.4
CLINTON	9.5	10.9	11.5
CRAWFORD	9.0	9.8	10.8
DALLAS	9.5	10.9	11.7
DAVIS	10.0	11.7	12.3
DECATUR	9.9	11.5	12.2
DELAWARE	9.5	10.9	11.5
DES MOINES	9.9	11.5	12.0
DICKINSON	8.6	9.7	10.6
DUBUQUE	9.4	10.9	11.4
EMMET	8.8	9.8	10.8
FAYETTE	9.3	10.8	11.5
FLOYD	9.3	10.8	11.5
FRANKLIN	9.4	10.8	11.5
FREMONT	9.3	10.2	11.4
GREENE	9.3	10.5	11.4
GRUNDY	9.5	11.0	11.6
GUTHRIE	9.5	10.5	11.4
HAMILTON	9.4	10.8	11.5
HANCOCK	9.3	10.6	11.4
HARDIN	9.5	10.9	11.6
HARRISON	9.0	9.8	10.6
HENRY	9.9	11.5	11.9
HOWARD	9.3	10.7	11.4
HUMBOLDT	9.3	10.4	11.2
IDA	8.7	9.7	10.7
IOWA	9.7	11.3	11.8
JACKSON	9.4	10.9	11.4
JASPER	9.7	11.3	11.8

COUNTY	25-yr 10-day	50-yr 10-day	100-yr 10-day
JEFFERSON	9.9	11.5	12.0
JOHNSON	9.7	11.3	11.8
JONES	9.5	11.0	11.6
KEOKUK	9.8	11.4	11.8
KOSSUTH	9.2	10.4	11.2
LEE	10.0	11.7	12.4
LINN	9.6	11.1	11.7
LOUISA	9.8	11.4	11.8
LUCAS	9.9	11.5	12.0
LYON	8.2	9.0	10.1
MADISON	9.6	11.0	11.8
MAHASKA	9.8	11.4	11.8
MARION	9.8	11.4	11.9
MARSHALL	9.6	11.2	11.7
MILLS	9.3	10.2	11.3
MITCHELL	9.3	10.7	11.4
MONONA	8.7	9.5	10.5
MONROE	9.9	11.6	12.1
MONTGOMERY	9.5	10.5	11.4
MUSCATINE	9.7	11.3	11.8
OBRIEN	8.5	9.5	10.5
OSCEOLA	8.5	9.4	10.4
PAGE	9.5	10.5	11.5
PALO ALTO	8.9	9.9	10.9
PLYMOUTH	8.5	9.3	10.3
POCAHONTAS	9.1	10.0	11.0
POLK	9.6	11.2	11.8
POTTAWATTAMIE	9.1	10.0	10.9
POWESHIEK	9.7	11.3	11.8
RINGGOLD	9.7	11.2	12.0
SAC	9.0	9.9	10.9
SCOTT	9.5	11.0	11.6
SHELBY	9.1	10.0	11.0
SIOUX	8.2	9.2	10.2
STORY	9.5	11.2	11.7
TAMA	9.6	11.2	11.7
TAYLOR	9.6	10.8	11.8
UNION	9.7	11.0	11.8
VAN BUREN	10.0	11.7	12.3
WAPELLO	9.9	11.6	12.1
WARREN	9.7	11.3	11.9
WASHINGTON	9.8	11.3	11.8
WAYNE	10.0	11.6	12.3
WEBSTER	9.3	10.5	11.4
WINNEBAGO	9.2	10.5	11.3
WINNESHIEK	9.3	10.7	11.4
WOODBURY	8.5	9.4	10.4
WORTH	9.2	10.6	11.4
WRIGHT	9.3	10.7	11.4

NORMAL ANNUAL AND MONTHLY EVAPORATION
AND
MEAN ANNUAL AND MONTHLY PRECIPITATION FROM SHALLOW LAKES AND RESERVOIRS

The design of waste storage ponds and waste treatment lagoons frequently requires an estimate of mean annual and monthly precipitation and evaporation. The following tables show this information.

The precipitation information is from the U.S. Weather Bureau Technical Paper No. 40. The evaporation information is taken from NOAA Technical Report NWS 33.

AVERAGE ANNUAL AND MONTHLY RAINFALL (inches)

COUNTY	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
ADAIR	34.86	0.89	1.01	2.23	3.50	4.40	4.48	4.51	3.92	3.83	2.56	2.12	1.19
ADAMS	35.31	0.83	1.01	2.27	3.39	4.52	4.48	4.58	3.96	4.09	2.63	2.18	1.15
ALLAMAKEE	33.72	0.92	0.92	1.90	3.61	3.80	4.44	4.35	4.59	3.29	2.28	2.22	1.17
APPANOOSE	37.17	1.01	1.13	2.31	3.47	4.74	4.49	5.03	3.98	4.02	2.87	2.46	1.45
AUDUBON	33.60	0.85	0.91	2.25	3.38	4.24	4.53	4.36	3.79	3.57	2.59	1.86	1.06
BENTON	35.19	1.01	1.04	2.17	3.40	4.18	4.79	4.16	4.44	3.52	2.57	2.35	1.34
BLACK HAWK	34.53	0.93	1.02	2.11	3.34	4.16	4.99	4.26	4.35	3.22	2.52	2.22	1.21
BOONE	34.13	0.88	0.91	2.16	3.30	4.27	5.04	4.34	4.22	3.11	2.50	2.03	1.16
BREMER	35.21	0.97	0.96	2.08	3.49	4.20	4.97	4.36	4.81	3.22	2.52	2.25	1.17
BUCHANAN	35.13	1.02	1.04	2.05	3.37	4.08	4.86	4.15	4.80	3.43	2.49	2.31	1.30
BUENA VISTA	31.83	0.67	0.63	2.05	3.32	3.84	4.85	4.13	4.31	3.12	2.19	1.67	0.84
BUTLER	34.40	0.88	0.90	2.05	3.34	4.20	5.12	4.42	4.29	3.23	2.51	2.12	1.12
CALHOUN	32.06	0.79	0.71	2.08	3.21	4.17	4.66	4.06	3.90	3.23	2.33	1.71	0.98
CARROLL	32.70	0.84	0.82	2.24	3.32	4.20	4.65	4.23	3.67	3.32	2.43	1.76	1.01
CASS	34.57	0.82	0.95	2.26	3.39	4.44	4.57	4.56	3.89	3.85	2.60	1.95	1.08
CEDAR	36.24	1.29	1.28	2.48	3.42	4.23	4.42	3.96	4.54	3.47	2.61	2.52	1.80
CERRO GORDO	34.00	0.90	0.79	2.05	3.29	4.15	5.02	4.38	4.46	3.24	2.44	1.97	1.08
CHEROKEE	29.64	0.65	0.63	1.98	3.00	3.73	4.54	3.85	3.76	2.89	2.02	1.60	0.79
CHICKASAW	35.34	0.98	0.93	2.08	3.59	4.16	4.84	4.42	4.87	3.26	2.50	2.25	1.24
CLARKE	35.95	0.89	1.10	2.21	3.55	4.62	4.49	4.62	4.05	3.96	2.67	2.30	1.26
CLAY	30.18	0.62	0.57	1.95	3.10	3.65	4.61	4.00	4.18	2.86	2.03	1.63	0.75
CLAYTON	34.23	1.03	1.10	2.05	3.54	3.88	4.52	4.10	4.66	3.21	2.35	2.32	1.26
CLINTON	35.82	1.35	1.36	2.51	3.38	4.04	4.47	3.61	4.56	3.26	2.62	2.57	1.88
CRAWFORD	31.32	0.75	0.72	2.17	3.16	4.12	4.45	3.99	3.57	3.29	2.33	1.61	0.95
DALLAS	33.80	0.87	0.94	2.14	3.32	4.31	4.73	4.27	4.05	3.29	2.50	2.01	1.15
DAVIS	37.41	1.17	1.22	2.42	3.48	4.77	4.31	4.76	4.03	4.02	2.81	2.58	1.63
DECATUR	35.63	0.89	1.14	2.32	3.51	4.67	4.40	4.77	3.95	4.07	2.92	2.35	1.32
DELAWARE	35.13	1.07	1.11	2.10	3.40	4.06	4.58	4.00	4.95	3.41	2.50	2.39	1.35
DES MOINES	36.75	1.30	1.41	2.67	3.49	4.35	4.22	4.25	3.89	3.60	2.71	2.67	1.97
DICKINSON	29.27	0.64	0.58	1.91	3.00	3.63	4.61	3.75	3.86	2.73	2.01	1.64	0.71
DUBUQUE	34.80	1.16	1.25	2.29	3.36	3.83	4.45	3.83	4.58	3.46	2.42	2.44	1.52
EMMET	30.04	0.73	0.59	1.86	3.08	3.65	4.64	3.92	4.01	2.74	2.14	1.68	0.77
FAYETTE	35.17	1.02	1.05	2.04	3.57	4.05	4.68	4.20	4.97	3.35	2.47	2.25	1.30

AVERAGE ANNUAL AND MONTHLY RAINFALL (inches)

COUNTY	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
FLOYD	34.57	0.94	0.84	2.01	3.39	4.18	5.06	4.40	4.57	3.31	2.46	2.07	1.12
FRANKLIN	33.84	0.85	0.82	2.04	3.21	4.19	5.15	4.36	4.32	3.16	2.44	1.98	1.10
FREMONT	34.03	0.77	0.91	2.35	3.27	4.51	4.37	4.79	3.81	3.49	2.52	1.98	1.04
GREENE	33.02	0.87	0.87	2.14	3.23	4.19	4.80	4.23	3.94	3.13	2.42	1.88	1.11
GRUNDY	34.61	0.89	0.97	2.18	3.26	4.26	5.25	4.34	4.16	3.10	2.56	2.23	1.20
GUTHRIE	34.19	0.87	0.96	2.24	3.36	4.34	4.68	4.36	4.11	3.43	2.51	1.95	1.16
HAMILTON	33.78	0.87	0.83	2.02	3.13	4.05	5.37	4.31	4.44	3.09	2.43	1.92	1.11
HANCOCK	32.15	0.80	0.72	1.93	3.21	3.89	4.81	4.23	4.22	3.02	2.26	1.83	1.01
HARDIN	34.22	0.91	0.90	2.13	3.19	4.20	5.29	4.23	4.24	3.14	2.51	2.15	1.13
HARRISON	31.69	0.73	0.75	2.25	3.15	4.33	4.42	4.03	3.42	3.37	2.39	1.68	0.94
HENRY	36.96	1.28	1.32	2.59	3.40	4.47	4.17	4.45	3.99	3.89	2.69	2.66	1.84
HOWARD	34.80	0.98	0.87	2.04	3.48	3.97	4.66	4.47	4.89	3.44	2.40	2.19	1.19
HUMBOLDT	32.37	0.83	0.72	2.05	3.20	3.94	4.77	4.22	4.20	3.12	2.28	1.80	1.02
IDA	30.71	0.77	0.67	2.11	3.14	3.97	4.59	3.85	3.78	3.01	2.17	1.57	0.89
IOWA	35.84	1.05	1.06	2.20	3.41	4.39	4.61	4.25	4.51	3.65	2.61	2.46	1.42
JACKSON	35.24	1.21	1.32	2.36	3.34	3.91	4.48	3.55	4.54	3.52	2.51	2.56	1.71
JASPER	35.08	0.97	1.05	2.18	3.35	4.45	4.65	4.27	4.32	3.46	2.67	2.28	1.22
JEFFERSON	36.48	1.22	1.23	2.46	3.39	4.55	4.08	4.45	4.00	3.87	2.77	2.55	1.70
JOHNSON	35.85	1.09	1.12	2.31	3.47	4.26	4.57	4.22	4.53	3.51	2.59	2.42	1.55
JONES	35.32	1.20	1.22	2.34	3.36	4.02	4.49	3.85	4.62	3.43	2.50	2.50	1.59
KEOKUK	35.74	1.07	1.1	2.35	3.37	4.40	4.28	4.31	4.20	3.79	2.70	2.52	1.44
KOSSUTH	31.25	0.74	0.65	1.89	3.11	3.86	4.71	4.20	4.13	2.85	2.24	1.78	0.88
LEE	37.89	1.39	1.46	2.79	3.52	4.72	4.18	4.34	3.72	3.81	2.79	2.88	2.08
LINN	35.37	1.08	1.09	2.18	3.40	4.16	4.65	4.12	4.58	3.52	2.50	2.41	1.46
LOUISA	36.19	1.24	1.32	2.58	3.44	4.29	4.11	4.17	4.17	3.57	2.67	2.57	1.85
LUCAS	36.36	0.92	1.15	2.23	3.52	4.60	4.57	4.67	3.99	4.05	2.84	2.35	1.25
LYON	27.16	0.53	0.55	1.87	2.71	3.35	4.24	3.43	3.58	2.52	1.94	1.54	0.67
MADISON	34.86	0.94	1.05	2.2	3.53	4.39	4.56	4.37	3.98	3.70	2.56	2.18	1.20
MAHASKA	35.87	1.02	1.14	2.18	3.40	4.49	4.38	4.37	4.18	3.83	2.73	2.56	1.36
MARION	35.49	0.92	1.1	2.11	3.64	4.49	4.47	4.38	4.17	3.68	2.75	2.33	1.23
MARSHALL	35.05	0.94	0.97	2.19	3.20	4.36	5.01	4.44	4.45	3.22	2.56	2.26	1.23
MILLS	33.42	0.73	0.85	2.26	3.27	4.61	4.54	4.51	3.76	3.42	2.42	1.85	0.99
MITCHELL	34.17	0.98	0.8	1.99	3.38	4.09	4.78	4.37	4.65	3.37	2.40	2.03	1.14

AVERAGE ANNUAL AND MONTHLY RAINFALL (inches)

COUNTY	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
MONONA	30.32	0.66	0.65	2.15	3.14	4.11	4.33	3.87	3.47	3.06	2.28	1.54	0.84
MONROE	36.72	1.05	1.17	2.26	3.51	4.63	4.45	4.84	3.94	4.03	2.72	2.52	1.40
MONTGOMERY	35.36	0.85	1.03	2.29	3.45	4.63	4.62	4.63	3.93	3.90	2.58	2.08	1.13
MUSCATINE	36.08	1.27	1.3	2.53	3.38	4.18	4.32	4.09	4.32	3.46	2.63	2.54	1.83
O'BRIEN	29.38	0.65	0.65	1.89	2.98	3.58	4.59	3.90	4.00	2.68	1.95	1.57	0.71
OSCEOLA	28.61	0.58	0.57	1.92	2.92	3.52	4.49	3.58	3.85	2.80	1.95	1.52	0.68
PAGE	35.37	0.86	1.0	2.34	3.30	4.59	4.54	4.78	3.98	3.82	2.63	2.21	1.10
PALO ALTO	31.09	0.74	0.64	1.95	3.13	3.71	4.70	4.17	4.17	2.88	2.19	1.76	0.85
PLYMOUTH	27.23	0.59	0.57	1.91	2.80	3.61	4.12	3.48	3.21	2.56	2.02	1.45	0.71
POCAHONTAS	32.0	0.81	0.7	2.07	3.20	3.90	4.66	4.20	4.23	3.11	2.20	1.77	0.93
POLK	34.4	0.89	1.02	2.15	3.35	4.32	4.81	4.30	4.29	3.24	2.55	2.09	1.19
POTTAWATTAMIE	33.3	0.76	0.84	2.28	3.30	4.50	4.55	4.48	3.57	3.60	2.41	1.80	0.99
POWESHIEK	35.74	1.05	1.11	2.19	3.44	4.36	4.53	4.25	4.43	3.72	2.70	2.43	1.31
RINGGOLD	35.8	0.83	1.06	2.31	3.26	4.53	4.44	4.73	4.00	4.03	2.91	2.25	1.24
SAC	32.02	0.77	0.71	2.19	3.28	4.07	4.70	4.06	3.90	3.19	2.30	1.69	0.97
SCOTT	35.82	1.34	1.35	2.56	3.41	4.04	4.50	3.78	4.37	3.19	2.60	2.56	1.91
SHELBY	33.11	0.78	0.81	2.21	3.28	4.26	4.48	4.22	3.69	3.86	2.53	1.77	1.00
SIOUX	27.67	0.6	0.59	1.92	2.77	3.46	4.27	3.56	3.52	2.54	1.99	1.53	0.72
STORY	34.61	0.87	0.91	2.14	3.19	4.21	5.19	4.62	4.40	3.10	2.48	2.14	1.14
TAMA	35.48	0.99	1.05	2.20	3.33	4.27	5.07	4.37	4.37	3.43	2.62	2.32	1.26
TAYLOR	36.01	0.88	1.04	2.32	3.27	4.62	4.50	4.87	4.00	4.02	2.84	2.27	1.17
UNION	35.15	0.87	1.05	2.21	3.45	4.48	4.45	4.55	3.80	3.96	2.64	2.27	1.21
VAN BUREN	37.14	1.30	1.28	2.49	3.51	4.69	4.16	4.55	3.72	3.93	2.79	2.65	1.84
WAPELLO	36.30	1.09	1.17	2.36	3.38	4.56	4.31	4.59	3.99	3.90	2.72	2.51	1.49
WARREN	35.13	0.95	1.10	2.16	3.58	4.48	4.59	4.35	3.97	3.62	2.70	2.19	1.23
WASHINGTON	35.62	1.18	1.16	2.38	3.27	4.37	4.19	4.27	4.15	3.68	2.63	2.47	1.66
WAYNE	36.91	0.95	1.14	2.31	3.52	4.63	4.42	4.95	3.97	4.10	2.93	2.41	1.35
WEBSTER	33.39	0.86	0.79	2.10	3.27	4.16	4.98	4.31	4.22	3.17	2.37	1.86	1.08
WINNEBAGO	32.44	0.84	0.67	1.90	3.19	3.92	4.83	4.27	4.51	2.95	2.30	1.86	0.99
WINNESHIEK	34.31	0.94	0.90	1.96	3.60	3.82	4.56	4.33	4.85	3.42	2.35	2.17	1.19
WOODBURY	28.76	0.63	0.63	2.05	3.01	3.89	4.17	3.63	3.34	2.76	2.13	1.51	0.78
WORTH	33.39	0.93	0.72	2.01	3.27	4.01	4.76	4.33	4.55	3.20	2.37	1.95	1.07
WRIGHT	33.03	0.80	0.75	1.99	3.21	4.05	5.13	4.26	4.23	3.13	2.35	1.88	1.04

AVERAGE ANNUAL AND MONTHLY EVAPORATION (inches)

COUNTY	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ADAIR	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
ADAMS	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
ALLAMAKEE	38.0	0.8	1.1	1.5	4.0	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
APPANOOSE	39.0	0.8	1.2	1.6	3.8	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
AUDUBON	40.0	0.8	1.2	1.6	3.9	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
BENTON	39.0	0.8	1.2	1.6	4.0	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
BLACK HAWK	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
BOONE	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
BREMER	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
BUCHANAN	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
BUENA VISTA	40.0	0.8	1.2	1.6	3.9	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
BUTLER	38.0	0.8	1.1	1.5	4.0	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
CALHOUN	39.0	0.8	1.2	1.6	3.8	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.1
CARROLL	40.0	0.8	1.2	1.6	3.9	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
CASS	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
CEDAR	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
CERRO GORDO	38.0	0.8	1.1	1.5	4.0	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
CHEROKEE	40.0	0.8	1.2	1.6	3.8	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
CHICKASAW	38.0	0.8	1.1	1.5	4.0	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
CLARKE	40.0	0.8	1.2	1.6	3.8	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
CLAY	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
CLAYTON	39.0	0.8	1.2	1.6	4.0	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
CLINTON	40.0	0.8	1.2	1.6	3.9	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
CRAWFORD	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
DALLAS	39.0	0.8	1.2	1.6	4.0	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
DAVIS	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
DECATUR	40.0	0.8	1.2	1.6	3.9	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
DELAWARE	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
DES MOINES	39.0	0.8	1.2	1.6	4.0	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
DICKINSON	40.0	0.8	1.2	1.6	3.9	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
DUBUQUE	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
EMMET	39.0	0.8	1.2	1.6	4.0	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
FAYETTE	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8

AVERAGE ANNUAL AND MONTHLY EVAPORATION (inches)

COUNTY	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
FLOYD	38.0	0.8	1.1	1.5	3.8	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
FRANKLIN	38.0	0.8	1.1	1.5	3.8	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
FREMONT	42.0	0.8	1.3	1.7	4.2	6.3	6.7	6.3	5.5	3.8	3.4	1.3	0.8
GREENE	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
GRUNDY	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
GUTHRIE	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
HAMILTON	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
HANCOCK	38.0	0.8	1.1	1.5	3.8	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
HARDIN	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
HARRISON	41.0	0.8	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8
HENRY	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
HOWARD	38.0	0.8	1.1	1.5	3.8	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
HUMBOLDT	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
IDA	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
IOWA	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
JACKSON	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
JASPER	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
JEFFERSON	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
JOHNSON	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
JONES	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
KEOKUK	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
KOSSUTH	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
LEE	39.0	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.7	0.8	0.8
LINN	40.0	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8	0.8
LOUISA	40.0	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8	0.8
LUCAS	39.0	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8	0.8
LYON	41.0	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8	0.8
MADISON	40.0	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8	0.8
MAHASKA	39.0	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8	0.8
MARION	39.0	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8	0.8
MARSHALL	39.0	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8	0.8
MILLS	42.0	1.6	1.7	4.2	6.3	6.7	6.3	5.5	3.8	3.4	1.3	0.8	0.8
MITCHELL	38.0	1.1	1.5	3.8	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8	0.8

AVERAGE ANNUAL AND MONTHLY EVAPORATION (inches)

COUNTY	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MONONA	41.0	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8	0.8
MONROE	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
MONTGOMERY	41.0	0.8	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8
MUSCATINE	40.0	08	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
OBRIEN	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
OSCEOLA	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
PAGE	41.0	0.8	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8
PALO ALTO	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
PLYMOUTH	41.0	0.8	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8
POCAHONTAS	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
POLK	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
POTTAWATTAMIE	41.0	0.8	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8
POWESHIEK	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
RINGGOLD	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
SAC	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
SCOTT	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
SHELBY	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
SIOUX	41.0	0.8	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8
STORY	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
TAMA	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
TAYLOR	41.0	0.8	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8
UNION	40.0	0.8	1.2	1.6	4.0	6.0	6.4	6.0	5.2	3.6	3.2	1.2	0.8
VAN BUREN	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
WAPELLO	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
WARREN	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
WASHINGTON	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
WAYNE	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
WEBSTER	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8
WINNEBAGO	38.0	0.8	1.1	1.5	3.8	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
WINNESHIEK	38.0	0.8	1.1	1.5	3.8	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
WOODBURY	41.0	0.8	1.2	1.6	4.1	6.2	6.6	6.2	5.3	3.7	3.3	1.2	0.8
WORTH	38.0	0.8	1.1	1.5	3.8	5.7	6.1	5.7	4.9	3.4	3.0	1.1	0.8
WRIGHT	39.0	0.8	1.2	1.6	3.9	5.9	6.2	5.9	5.1	3.5	3.1	1.2	0.8

ONE-HOUR PEAK RUNOFF

The criteria for design for animal solid settling facilities refers to the peak runoff from a 10-year, 1-hour storm. The 10-year, 1-hour storm for the state of Iowa is 2.4". Following is a method for determining the peak runoff for a 1-hour storm.

Equation 16A-9, page 16A-2, National Engineering Handbook, Part 630, Hydrology, gives the equation for determining peak rate of flow:

$$q_p = \frac{484\,(A)\,(Q)}{\frac{\Delta D}{2} + 0.6\,(T_C)}$$

When: q_p = peak rate of flow, cfs

A = drainage area, sq. mi. = $\frac{a}{640}$

a = drainage area, acres

Q = runoff, inches

ΔD = storm duration, hours

T_c = $\frac{\text{Length, feet}}{(3600)\,(\text{Velocity, ft/sec})}$ = Time of concentration, hours

Length = Most distant point in the watershed to the settling basin, feet

Velocity = 2 ft/sec for unpaved lot, 4 ft/sec for paved lots

Then for a 1-hour storm:

$$q_p = \frac{484\,(A)\,(Q)}{\frac{1}{2} + 0.6\left[\frac{\text{Length}}{3600\,(\text{Velocity})}\right]} \quad \text{or} \quad q_p = \frac{\frac{484\,(a)\,(Q)}{640}}{\frac{1}{2} + 0.6\left[\frac{\text{Length}}{3600\,(\text{Velocity})}\right]} \quad \text{or} \quad q_p = FaQ$$

Determine value of F from the following table:

Length	Value of F	
	v = 2 fps	v = 4 fps
0	1.51	1.51
100	1.49	1.50
500	1.40	1.45
1000	1.30	1.40
1500	1.21	1.34
2000	1.13	1.30
2500	1.07	1.25
3000	1.01	1.21
4000	0.91	1.13
5000	0.83	1.07

Example:

Find the peak rate of runoff for a 10-year, 1-hour storm from a 4-acre paved feedlot in Humboldt County. All outside runoff is diverted from the lot. It is 1000 feet from the most distant point in the lot to the settling facility.

10-year, 1-hour rainfall = 2.4 inches (for the state of Iowa)
RCN = 98 for paved lots
Q = 1.78 inches
F = 1.40
Q_p = (1.40)(4)(1.78) = 9.97, Use 10 cfs

This procedure was developed by Herman W. Kopitzke, Jr., Hydraulic Engineer

RUNOFF FROM POTHOLE TOPOGRAPHY

The pothole topography in north central Iowa must be treated as a special case when determining the peak rate of flow and volume of runoff. The procedure described on these pages is for use in designing dams for which an IDNR permit is required. This type of topography is flat to gently undulating with depressional areas that may store the entire storm runoff. Sufficient survey must be made to evaluate the volume of pothole storage available. Design frequency will be based upon total drainage area. There are three situations that may occur. All three conditions may be present in the area contributing runoff to a dam or other point.

1. Potholes Store Entire Runoff Volume

   If the potholes have sufficient capacity to store the entire runoff volume of the design storm, that portion of the watershed may be excluded from the drainage area for estimating peak flow and temporary storage volume. If the potholes are subsurface drained, runoff from the pothole area shall be treated as base flow using a ½-inch drainage coefficient or the actual drainage coefficient, whichever is greater.

2. Potholes Store Partial Runoff Volume

   The runoff from the total drainage area may be reduced to allow for pothole storage. If the potholes have capacity to store a portion of the runoff volume of the design storm, measure the drainage area contributing to and controlled by potholes, estimate the available storage in the potholes, and convert to inches from the contributing watershed. The reduced or adjusted runoff is computed by use of the formula:

   $$Q_A = Q - \left(\frac{\text{Pothole Drainage Area}}{\text{Total Drainage Area}}\right) \text{(Inches Pothole Storage)}$$

   The peak discharge rate for the total drainage area may be reduced by the same percentage as the reduction in runoff volume using the formula:
   $q_{pA} = q_p(Q_A/Q)$.

   Where:

   Q_A = Adjusted runoff depth (inches)
   Q = Runoff depth (inches) for total drainage area
   q_{pA} = Adjusted peak discharge rate (cfs)
   q_p = Peak discharge rate (cfs) for total D.A.

   A base flow equivalent to a ½-inch drainage coefficient (or actual drainage coefficient, if larger) from the pothole area shall also be used. For large full-flow structures, contact the state hydrologist for more sophisticated procedures.

3. Extremely Flat Topography

Some watersheds have areas with steeper topography which contribute runoff which concentrates and then runs through an extremely flat area either into floodwater retarding pools or into a steeper channel or waterway and then into floodwater retarding pools. These areas have positive drainage without potholes. Develop a hydrograph for the runoff from the steeper areas and then route it downstream using GO, REACH in Sites. Add it to hydrographs for other areas and route through the proposed site. A sample Sites job is shown below. This sample job develops the runoff hydrograph from two areas, adds baseflow, routes through a steeper area, develops a runoff hydrograph from the areas draining directly into the structure site, adds an additional base flow, adds the two hydrographs, and routes them through structure “Pond.”

```
SITES     05/01/2000000        Pond
SAVMOV    0    101
SAVMOV    101  1
*         Subwatershed 1 reduced for ponded soils 1:1
*         1903 total acres; 159.5 ponded soils
*         Quite a bit of area may be blocked by old railroad bed not
*         accounted for in this analysis.
WSDATA    5S 3 1 AC 78        1743.5    5.16
BASEFLOW            4
PDIRECT             5.3       6.6
GO,DESIGN
SAVMOV    2    101  3                   3
SAVMOV    0    101
SAVMOV    101  1
*         Area 2 subwatershed reduced for ponded acres 1:1
*         925.2 total acres; 488.7 ponded soils
WSDATA    5S 2 1 AC 78        436.5     3.68
BASEFLOW            4
PDIRECT             5.3       6.6
GO,DESIGN
SAVMOV    2    101  5                   2
ADDMOV
SAVMOV    101  2
*         Channel from centerline to jct w/ Rhoades lateral
GO,REACH  1    A1             8000      0.4       1.4
SAVMOV    2    101  2                   1
SAVMOV    101  1
*         Subwatershed 1 area reduced for ponded soils
*         1427.3 total acres; 129.8 acres ponded soils
STRUCTURE 000       Pond Site
                    80        0
                    82        0.04
                    84        0.13
                    86        0.35
                    88        1.01
                    90        1.99
                    92        3.26
                    94        5.09
                    96        7.49
                    98        9.84
                    100       12.47
                    102       15.35
                    104       19.7
                    106       24.28
ENDTABLE
WSDATA    5S 1   AC 78        1287.5    3.38
BASEFLOW            4
PDIRECT             5.3       6.6
POOLDATA  ELEV                98        98
PSINLET             1         19
PSDATA    1         120       48                  .025      85
GRAPHICS  I
GO,DESIGN QLN
SAVMOV    2    101  1                   000
ENDJOB
ENDRUN
```

Runoff may be adjusted for the effect of terraces in the design of many conservation practices. Terraces may have a shorter design life than some other practices so a partial credit is used. For areas that have or definitely will have closed-end terraces, the runoff may be reduced by 1.0 inch. The same considerations apply to water & sediment control basins. The adjusted runoff is computed by the use of the formula:

$$Q_a = Q - \left(\frac{\text{Area\_Terraced}}{\text{Total\_Drainage\_Area}} \right) (1.0\_\text{inch})$$

Where :

$Q = \text{Runoff Depth, inches}$

$Q_a = \text{Adjusted Runoff Depth, inches}$

On level terraced areas, the water stored by the terrace will infiltrate into the soil and will not be considered as part of the runoff. For terraces using underground outlets that drain into the practice being designed, a base flow of 0.05 cfs per acre needs to be added to the inflow.

Peak discharge rates may be reduced by the same percentage as the reduction in runoff volume.

Many software packages are not able to directly give credit for the runoff reduction. For those situations a revised rainfall value can be calculated from the adjusted runoff depth and the runoff curve number.

Example Problem

Given:

Total Drainage Area = 225 acres

Drainage area controlled by closed-end, level terraces = 30

Drainage area controlled by terraces w/ underground outlets = 10

Total terraced area = 30 + 10 = 40 acres

Runoff Curve Number, CN = 78

Rainfall Value #1, P1= 4.4"

Rainfall Value #2, P2 = 5.1"

Find: Adjusted Runoff Depths, Base Flow, Peak Flow reduction, Adjusted rainfall

Rainfall #1

From EFH-2, Table IA2-1, Input P=4.4 & CN =78 : Result- Runoff, Q=2.21"

$$\text{Adjusted Rainfall} = Q_a = 2.21 - \left(\frac{40}{225} \right) (1.0) = 2.03"$$

$$\text{Baseflow} = 10\,\text{acres} * 0.05 = 0.5\,\text{cfs}$$

$$\text{Peak Flow Reduction} = \frac{Q_a}{Q} = \frac{2.03"}{2.21"} = 91.9\%$$

From EFH-2, Table IA2-1, Input Qa=2.03" & CN =78 : Adjusted Rainfall P=4.18"

Rainfall #2
From EFH-2, Table IA2-1, Input P=5.1 & CN =78 : Result - Runoff, Q=2.8"

$$\text{Adjusted Rainfall} = Q_a = 2.8 - \left(\frac{40}{225}\right)(1.0) = 2.62"$$

$$\text{Baseflow} = 10\,\text{acres}\,(0.05) = 0.5\,\text{cfs}$$

$$\text{Peak Flow Reduction} = \frac{Q_a}{Q} = \frac{2.62"}{2.8"} = 93.6\%$$

From EFH-2, Table IA2-1, Input Qa=2.62" & CN =78 : Adjusted Rainfall P=4.89"

The effects of terrace and water & sediment control basins on runoff process, shown above, is available in electronic spreadsheet format (i.e.: IaTerraceCredit.xls) at http://www.ia.nrcs.usda.gov/technical/design/program.html